Minnesota Local Agency Asset Management Peer Exchange

May 15-16, 2017

Report



Sponsored by: MnDOT Office of State Aid for Local Transportation

MINNESOTA LTAP

CENTER FOR

TRANSPORTATION STUDIES





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Introduction

Minnesota county and city engineers are a group of professional, expert, and experienced engineers who have a tremendous wealth and breadth of knowledge. A peer exchange taps into this knowledge and expertise and provides a forum in which peers can learn from, share with, and discuss challenges and opportunities with each other.

On May 16 and 17, 2017, a peer exchange for local agencies on asset management was held in St. Cloud, Minnesota. The event was sponsored by the MnDOT Division of State Aid for Local Transportation (SALT) and coordinated by the Center for Transportation Studies (CTS) at the University of Minnesota with financial assistance from the Federal Highway Administration (FHWA). The meeting focused on the needs and interests of small, rural cities and counties and was inspired by a similar peer exchange held last year for metro-area agencies. It provided an opportunity for participants to explore a variety of issues and challenges surrounding transportation-related asset management.

Asset management means managing the assets (i.e., signs, roads, pavement) an agency owns in an efficient, business-like way to benefit area citizens. Local agencies have a considerable amount of asset information and firsthand experience with their systems. They use this knowledge and information—along with engineering expertise and close connection to citizens and elected officials—to help direct long-term budget, planning, and investment decisions.

In recent years, data-driven asset management software systems have been developed that can benefit local agencies. They accomplish this by directly guiding or confirming investment decisions while providing the added benefits of better data organizing, managing, and tracking. The challenge is often finding which system is best for each organization.

The peer exchange featured national and local speakers sharing their expertise and success stories on a variety of asset management topics. The speakers and topics were as follows:

- Kris Riesenberg, Federal Highway Administration: 2016 Hennepin Co Asset Mgmt Peer Exchange
- Rick West, Public Works Director/County Engineer: Otter Tail County 2040 Transportation Plan
- Steve Stroschein, Senior Engineer: Crow Wing County Integrated Asset Management
- **John Kostreba**, Engineering Technician Supervisor, and **Mike Becker**, Engineering Technician: *Morrison County Culvert Inventory*
- Nick Anderson, Consulting Engineer: Big Stone Countywide Culvert Inventory
- Allison Kampbell, GIS Specialist: Carver County City Asset Inventory
- Ryan Miles, Street Operations Program Manager: City of Vancouver, WA, Pavement & Asset Management
- Tim Colling, Michigan LTAP Director: RoadSoft Roadway Asset Management
- Brad Wentz, Program Director: North Dakota Roadway Asset Management, UGPTI
- Ryan Miles, NWPMA Chair: Northwest Pavement Management Association (NWPMA)
- Inya Nlenanya, Transportation Research Specialist: Iowa Pavement Management Program

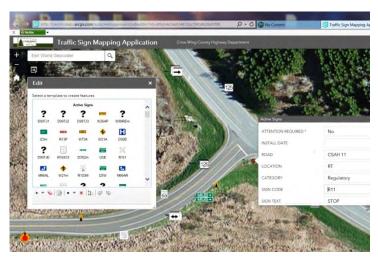
Presentation Summaries

Joel Ulring, pavement engineer at State Aid for Local Transportation, Minnesota Department of Transportation, and Jim Grothaus, assistant director of coordinated research and technology transfer at the University of Minnesota Center for Transportation Studies, welcomed everyone and gave opening remarks. Grothaus also facilitated the event and provided an overview of the workshop, describing the importance of asset management, stating the goals of the event, and stressing the benefits of learning from peers.

Kris Riesenberg, team leader with the Federal Highway Administration Minnesota Division, was the first presenter and reviewed the 2016 Hennepin County Asset Management Peer Exchange. He also shared success stories from several cities throughout the nation that are doing great asset management work. There are federal requirements for states to do asset management with the ultimate goal of improving the stewardship and the condition of the nation's transportation system.

Rick West, Otter Tail County engineer and public works director, shared Otter Tail County's 2040 Transportation Plan. The goal of this plan is to ensure that constrained funding is invested in the best interests of the public. One of its highlights was the establishment of a four-tiered highway rating system. An extensive public outreach program that included direct involvement of citizens and local elected officials was crucial to public acceptance and support and ultimately the success of the plan.

Steve Stroschein, senior engineer with Crow Wing County, demonstrated the agency's integrated asset management program. They use an ESRI mobile-platform-based program that requires only inexpensive smartphones and iPads. They started with just managing signs and have expanded applications to right-of-way, bridges, culvert inventory, ADA compliance, storm sewers, weight restrictions, construction, and public data sources. It is easy to use and provides excellent GIS mapping and reporting.



Crow Wing County's ESRI system

John Kostreba, engineering technician supervisor with Morrison County Public Works, and Mike Becker, engineering technician with the Morrison Soil and Water Conservation District, discussed how their agencies addressed two challenges in a cooperative venture. Together, they contracted with RT Vision to develop a software asset management system that allowed them to update old legacy maps and notes to a more usable and updatable format. It also made the information readily available to the public.

Nick Anderson, consulting engineer with Bogart-Pederson and Associates (and former Big Stone County engineer) shared how the Big Stone County developed a data collection and asset management program with limited resources. They installed a high-accuracy reference network (HARN), bought GIS equipment, and hired a contractor to complete a parcel map. One important and valuable data-management feature they now have is the ability to track the repair history on the department's maintenance equipment. They have continued to grow their asset management programs to include township data and other county assets.

Allison Kampbell, Carver County's GIS specialist, shared how the county and its cities have created a unique collaboration to develop and manage an infrastructure asset management program. This model could be replicated in other Greater Minnesota counties with many small cities and limited resources. The county entered into agreements with its cities to develop a cooperative GIS program. The county employs the GIS specialist, hosts the ESRI software and web server, and is responsible for security. The benefits of the county-wide collaborative approach include cost savings, increased sharing of GIS data, quicker start-ups for GIS, and building strong working relationships.

Ryan Miles, street operations program manager for Vancouver, Washington, described the city's successful pavement management system (PMS). Vancouver's PMS assesses the condition of its pavements, predicts their future performance, analyzes performance of individual projects and the road network with alternative treatments, provides a valuable budgeting resource, and assists in informing the public and elected officials about the city's street system and its future. The PMS is a web-based GIS program operating on a remote vendor's secure server. It can provide a long-term, multi-year comprehensive analysis of pavement road network conditions as well as maps and reports for informing the public and elected officials.

Tim Colling, director of the Center for Technology & Training at Michigan Tech University, provided an overview of Michigan's pavement management systems. He stressed the importance of thinking about asset management as a business process, not just a software tool. Agencies starting with asset management should first develop their business process and then look for software to meet their needs. He encouraged the group to collect data only if there is a plan in place for how to use it, especially since data collection is the greatest cost. A data collection guide is essential and should be updated annually.

Colling also explained how the Michigan Legislature created a Transportation Asset Council that reports annually to the Legislature's Transportation Commission. The Council provides data collection tools, asset management software, training, and funding to establish a pavement management system for the state's public road miles. All local agencies in Michigan use RoadSoft for data collection and analysis. The RoadSoft software is a GIS-based management system that uses data to produce information to help make decisions.

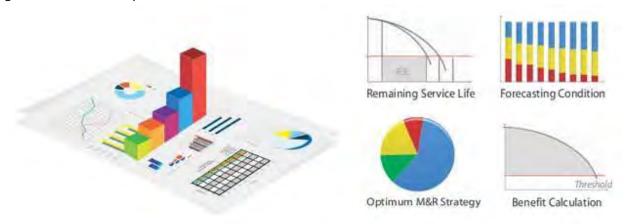
Brad Wentz, director of the Upper Great Plains Transportation Institute (UGPTI) at North Dakota State University and former Minnesota county engineer, presented information about the pavement management system called Geographic Roadway Inventory Tool (GRIT 1.0). Developed by North Dakota, GRIT 1.0 is a web-browser-based management tool that is easy to use with multiple laptops and mobile

devices. It is map-based and compatible with other interactive maps, and it uses a linear referencing system using GPS points. It also allows for independent county data editing. GRIT has the potential to be applied to rural areas throughout the United States. A next step is to work with Minnesota counties using this tool.

Brad Henry, an engineer with MN2050, stated that the goal of 2050 is to have all infrastructure using asset management. A state of infrastructure survey was completed that shows most of Minnesota's roads and bridges are part of an asset management system, but most public utilities are not. He emphasized the need for our industry to do a better job advocating for our infrastructure. Henry is also working with the University of Minnesota to include asset management components in civil engineering courses.

Ryan Miles returned to present on the history of the Northwest Pavement Management Association (NWPMA), of which he is chair. He provided an overview of how this formalized group of nonprofit agencies formed and became a cohesive group. The NWPMA's purpose is to promote partnerships, manage pavements, promote pavement management technology transfer, conduct research and education, and provide a forum for the exchange of ideas for their members in Oregon, Washington, and Idaho. He introduced the question of whether this type of association could work in Minnesota or in our region. Miles extended an invitation to all those present to attend the NWPMA Annual Conference, which will be October 16-19, 2017, in Vancouver, WA.

Inya Nlenanya, transportation research specialist from the Center for Transportation Research and Education at Iowa State University, rounded out the presentations by sharing the history and goals of the Iowa Pavement Management Program (IPMP). IPMP provides support of the management, planning, and programming needs of transportation agencies. It also provides pavement management information, tools, and training for project- and network-level activities. IPMP takes raw data and helps agencies utilize and implement the data.



Iowa Pavement Management Program's (IPMP) Asset Management Tools

To view the full presentations, see Appendix A.

Recap of Presentation Highlights

Jim Grothaus facilitated a group discussion focused on identifying presentation highlights. Attendees shared the following items that most resonated with them:

- We're all in the same boat trying to find the easiest and most efficient way to track assets.
 There's not just one way to do it or one tool to use. Agencies need to figure out what works best for them.
- Many cities and counties would like to consolidate their asset management. Often they're using a separate program or tool for each asset.
- Many agencies are collaborating with other internal departments on data collection and management within their organization. Data isn't necessarily shared among departments.
- Entities are moving away from "worst-to-first" concept.
- Ryan Miles thought that Ottertail County's tiered approach was great. He would like to implement the way that they document their method.
- There are a lot of benefits to sharing resources. It is a good way to be a good neighbor and save resources.
- The concept of thinking about asset management as a business process versus a software tool resonated. There are great benefits to changing the viewpoint to focus on the outcome—the business side and how best to use the data.
- Don't collect data if you're not going to use it.
- Federal Aid program can be eligible for preventative maintenance, if the agency has a preventative maintenance plan.

Round Robin Discussion: Challenges and Discoveries

Before attending this peer exchange, participants were sent a list of questions to consider to prepare for the event. At the beginning of the workshop, participants were reminded of those questions and encouraged to think about them throughout the event. The final portion of the peer exchange was dedicated to addressing those questions individually, in writing, and as part of a group discussion. The questions and responses from the group are as follows:

What are/have been your agency's top two or three challenges to implementing asset management?

- Software—identifying the best tools. There's difficulty in understanding and maintaining software.
- There's a lack of IT and/or technical staff or GIS knowledge. This is a barrier; commercial software is complicated.
- Technology training is needed.
- Agencies use numerous tools and/or programs to manage each asset. This needs to be consolidated.
- GIS and CAD don't talk to each other well.
- There's little to no money or support from elected officials and/or management. City council has not been interested in investing in streets since the recession.

• How do you talk about asset management with decision makers?

What is different or what has changed in your agency if you have implemented an asset management system?

- Vancouver has seen an integration of engineering and maintenance staff since using asset management.
- The "worst-to-first" method of operation has gone by the wayside.
- Public outreach has been implemented.
- Turnbacks have begun to occur since implementing the asset management system. The discussion has been started, but it's a long-term process.
- When the data was available on the website and transparent for the public and the board, it
 really helped the level of understanding and the decision-making process ran more smoothly.
 There has been better public involvement and a better understanding of system across the
 county.
- Staffing has changed, and philosophies have as well (seeing generational changes). We're moving away from paper-based systems and into technology.
- The consultant community is becoming more aware of asset management and is looking to see how they can help.
- Staff efficiencies have been built by using GIS (monumental tasks). Traffic counts are examples (from Carver County) of using mobile GIS to help staff be much more efficient.

What lessons have you learned on this asset management journey that you feel are the most important takeaway for us today? Any advice for those that are just beginning?

- Get a good data manager, field manager, and someone who can interface between the two.
- A data manager manages databases and data collection and interprets data. This person's skill set is data management; they are not an engineer. When hiring someone new, look for this skill set.
- Identify goals and outcomes and figure out how to use before choosing a product.
- Many agencies have similar issues and are at different stages of asset management.
- Agencies would like to see a centralized state-managed asset management system. They don't
 want to see different cities and counties using different tools and data. They want to be able to
 have data and systems that talk to each other and can compare apples to apples. They also want
 rating systems to be the same and unified. And they want things centralized and direction given
 for how to use the system.
 - This marks a change. Twelve years ago, there was a push to have centralized data.
 However, at that time agencies didn't want to get compared to their peers, so they decided against this. Today, we're further down the curve and this would be a good time to start those discussions again of getting a centralized state managed system.
- Hundreds of different asset management systems are currently in use. Michigan is a good model.
- Don't rush it when you're beginning to develop your asset management system. It takes time to do it right. Trust-building is imperative.

 Carver County is a success story and good model of how to share resources and staff within a county and among cities. Wadena County is also partnering with Engineering, GIS, and other departments.

How easy has it been to gain support from your leadership/elected officials?

- Build trust over time, using open and consistent communication.
- Simplify your message and communicate it in a way that a layman can understand.
- Graphics are really important. Use graphics in your communication that are simple and easy to understand.
- If you're going to get an expensive tool, communicate, communicate.
- Timely delivery is imperative; it destroys trust if you don't deliver on time.

What can State Aid do to help you with asset management?

- Discussions could start with this group, an asset management group, and/or the county engineers' Pavement Committee.
- Implement a centralized asset management system. It should be in a standardized GIS format. A tool that would be easy to use to share information with elected officials.
- Standardized pavement rating information would be great to share.
- State Aid has two data collection vans. It would be great if cities could use these vans for automated data collection. State Aid is considering this. Vans are very expensive, but the return on investment could be incredibly beneficial.

Summary and Next Steps

The asset management peer exchange was considered a success by those who planned it and very worthwhile by the attendees. As noted in this report, 11 presentations were given providing examples of how small and rural local agencies are approaching management of their assets. The presenters shared their knowledge of and experience using available tools and technology to efficiently and effectively manage assets within their organizations. The main purpose and goal of the peer exchange was to promote the transfer of knowledge and learning between small and rural agencies, assisting in expanding asset management across Minnesota.

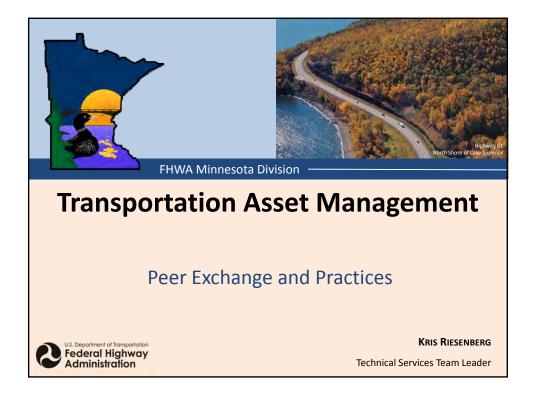
Several of the presenters brought to light the fact that tools and technology are often unknowingly already available to agencies. One participant told the group that he was going to immediate arrange a meeting with the GIS department within his agency after the event. His department had not been working with the GIS department, but he discovered during the peer exchange that the GIS department had tools available to assist him in managing assets under his responsibility. Another presenter showcased the efficiencies, cost savings, and consistency in data gathering made possible by sharing staff between different agencies that could not afford a position on their own. These agencies were able to efficiently collect high-quality data on their assets at a fraction of the cost as a result of shared personnel resources. By learning and sharing what agencies are currently doing to gather asset management data, other agencies can learn about options and resources for managing their assets efficiently and cost effectively.

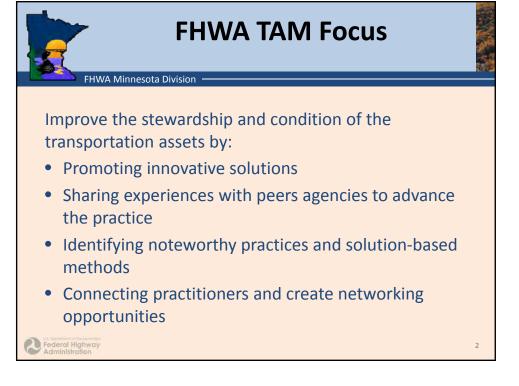
So what are the next steps in the effort to encourage and promote asset management among Minnesota's local agencies? Based on what was learned and taken away from the peer exchange, a starting point is to promote and increase awareness of the tools already available to agencies at no additional cost. Additionally, departments within agencies can learn from and work closer with each other to use their knowledge and skills. This allows them to assist each other in efficiently tackling asset management. Future peer exchanges are being considered to continue promoting knowledge-sharing among agencies. There is also a need to promote and implement research related to asset management. Several research projects are under way and have been completed by the Minnesota Local Road Research Board (LRRB) and MnDOT Research Services.

Asset management is becoming more important for managing aging infrastructure with limited budgets and staffing levels. Peer exchanges and active sharing between agencies can help facilitate efficient and effective asset management, ultimately maximizing asset life while providing good service to the public that depends on them.

Appendix A: Speaker Presentations

Kris Riesenberg: Review of the 2016 Hennepin County Asset Management Peer Exchange







2016 Peer Exchange

HWA Minnesota Division

Pilot peer exchange @ Hennepin Co. Library Sponsored by:

- > FHWA MN Division
- > Hennepin County

Goal for the Exchange

> Assess state-of-the-practice for technology, tools & techniques in asset inventory & analysis for large agencies



Peer Exchange Participants

FHWA Minnesota Division

MN Participants

- Hennepin County
- Ramsey County
- St. Louis County
- **MnDOT**
- Met Council
- MN LTAP (facilitator)

External Participants

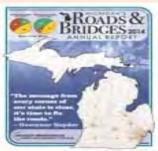
- City of Seattle DOT
- SEMCOG (Detroit MPO)
- Michigan DOT
- Duluth-Superior MPO Metro Transportation Commission (San Francisco MPO)
 - Wisconsin DOT
 - Applied Pavement Technologies

45 total participants





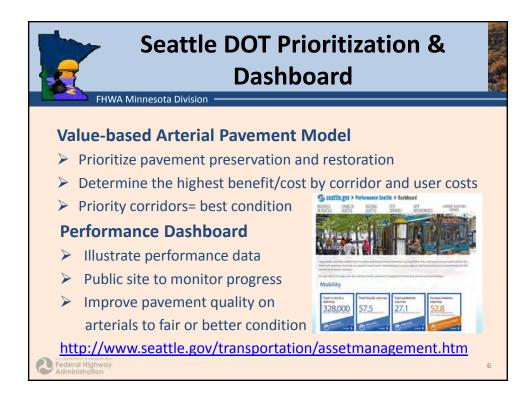
- Collaboration among state and local transportation agencies statewide
- Share asset management practices



- Develop asset management methodologies and provide training
- Develop shared Linear Reference System

http://tamc.mcgi.state.mi.us/TAMC/#/

Federal Highway





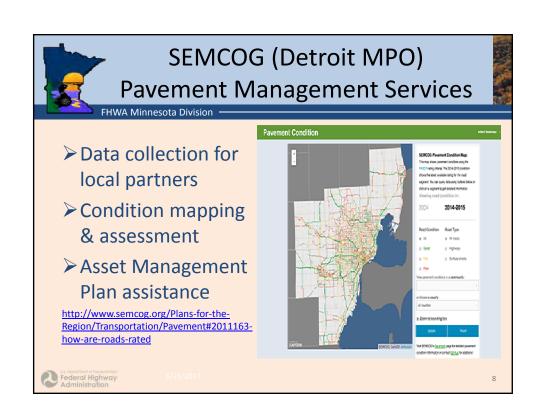
FHWA Minnesota Division

MTC (San Francisco MPO) provides various asset management services to its local partners:

- ➤ Spend \$1 or \$5 advocates for preventative maintenance actions to maintain 'good' pavements
- StreetSaver (pavement management system)
- ➤ Pavement Technical Assistance Program tools to stretch the budget and manage the network condition

 $\underline{http://mtc.ca.gov/our-work/invest-protect/investment-strategies-commitments/fix-it-first/local-streets-and-roads}$







Successful peer exchange

- ➤ Hennepin County's leadership
- ➤ Quality discussion
- ➤ Innovative practices for large agencies
- > Action plan



q

MN Opportunities

FHWA Minnesota Division

- ✓ Regional or statewide collaboration
- √ Variety of available asset management tools
- ✓ Data and/or resource sharing
- √ Asset management plans
- √ Future Peer Exchanges



2017 Peer Exchange

FHWA Minnesota Division

- What are the new opportunities for MN?
- How can we improve our practices?
- What are our peers doing?
- What resources are available?
- Do we need a future peer exchange or regular collaboration?

Questions or comment?





Otter Tail County 2040 Transportation Plan



Better roads for a better Otter Tail... our values, our priorities

Asset Management Peer Exchange

Adopted July 21, 2015

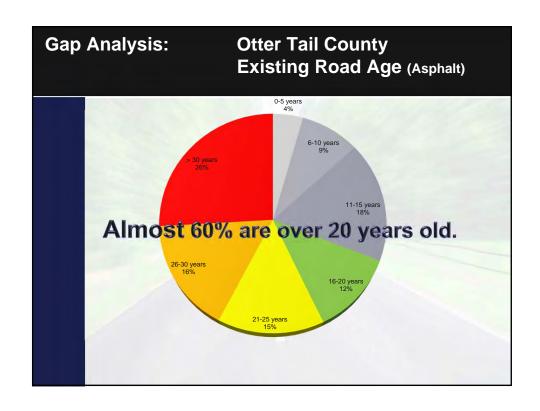
Study Purpose and Goals

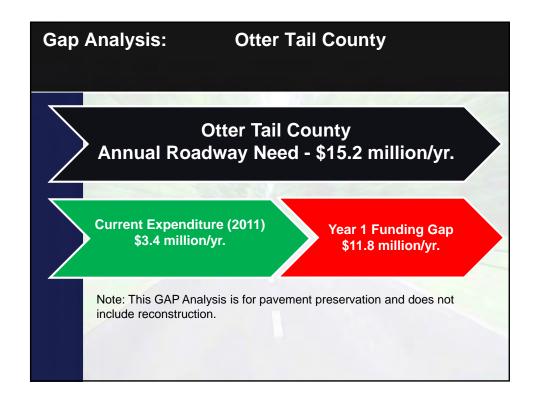
- Leverage existing tools
- Analyze existing road conditions
- Comparison of funding versus road conditions
- Make new tools available
 - Analysis and planning
 - Communications
- 5. Develop customized solutions for future needs
- Promote awareness of best practices

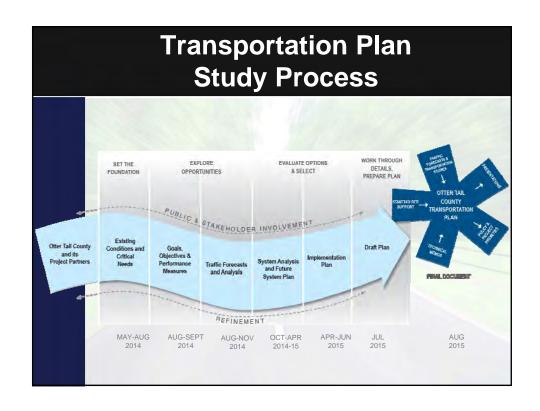
Integral to each step is: Education and Communication:

- · County Boards
- General Public

Gap Analysis: O	tter Tail County
Miles of Asphalt Roads	= 1,070
County State Highway	s = 935
County Roads	= 135
Number of Vehicle Bridges	= 75
Functionally Obsolete	= 0
Structurally Deficient	= 9
Adequate	= 66 Phelps Mill Photo by Elizabeth A. Armo
	(Wikimedia Common







Preservation Strategies Evaluated in Plan

- Reducing System Size
- Developing a Tiered Roadway Maintenance Program
- Developing Performance Measures & Schedules
- Identifying New Funding Sources
- Establishing a Transparent Project Prioritization Process
- Promoting Expanded Public Engagement

Preliminary Public Outreach

Otter Tail County

Public Outreach Activities

- January 8, 2014
 Fergus Falls
- January 9, 2014
 Pelican Rapids
- January 28, 2014
 Perham
- January 30, 2014
 Henning
- April 2014 Meetings Same locations

Decision Points

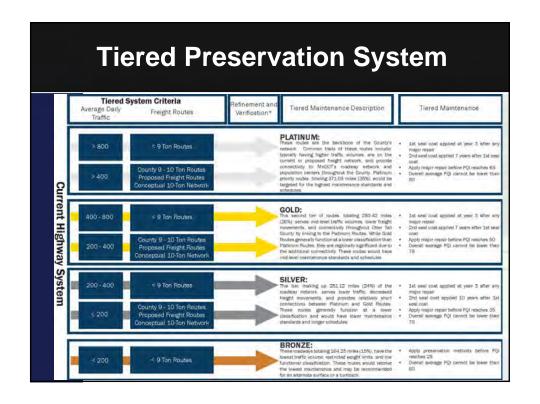
- April 2014: County considered input, adopted new strategies
- Fall 2014
 Began new strategies



2040 Transportation Plan Outreach Otter Tail County

- Extensive Public Engagement Process:
 - Open Houses (6 mtgs)
 - Focus Group Sessions (2 mtgs)
 - Consultations with Other Interests (cities, major businesses, townships, MnDOT D-4, WCI, etc.)
 - Project Management Team (8 mtgs)
 - Project Steering Committee (5 mtgs)
 - County Board Sessions (2 mtgs)
 - Study Website
 - Public Hearing (1 mtg)

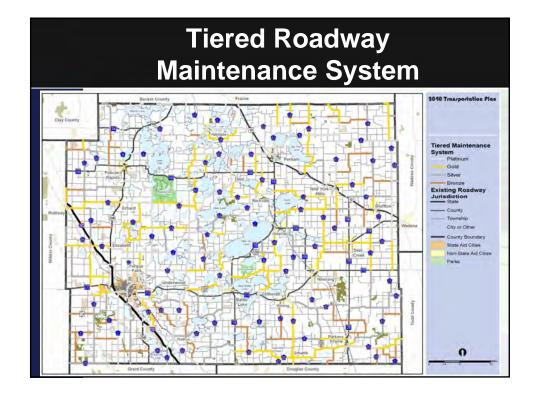




Tiered Preservation System PLATINUM: These routes are the backbone of the County's network: Common traits of these routes include typically having higher traffic volumes, are on the surrent or proposed freight network, and provide connectivity to MnODTs roudway network and population centers throughout the County, Platinum priority routes, totaling \$71.05 males, (35%), would be targeted for the highest maintenance standards and schedulies. Typically higher volumes Current and proposed freight network Provide connectivity to MnDOT system 35% of the system Mid-level traffic volumes Lower freight volumes Connectivity throughout the county connecting to Platinum routes 26% of the system Serves lower traffic Decreased freight movements Provides relatively short routes between These routes generally function at a lower classification and would have lower maintenance standards and longer schedules. Platinum and Gold routes 24% of the system Lowest traffic volumes Restricted weight limits Low functional classification 15% of the system

Revenue Enhancements

- Wheelage Tax (\$10/vehicle): \$568,650/yr. (2013 est.)
- Local Option ½ cent Sales Tax \$4,384,000/yr. (2013 est.)
- Bonding
- Increased local road and bridge levy
- State gas tax and/or registration fees (legislative proposal): \$2,280,000/yr. (2015 est.)
- Gravel Tax



Project Prioritization

- Prevent "fair condition" roads from falling into "poor condition;" avoid worst first approach
- Used County Pavement Management System to evaluate priorities, based on good data, new management policies, and performance measures
- Prioritized preservation strategies over more expensive reconstruction fixes.
- Developed scope and cost
- Established program of projects (10 year list)

System Preservation Analysis

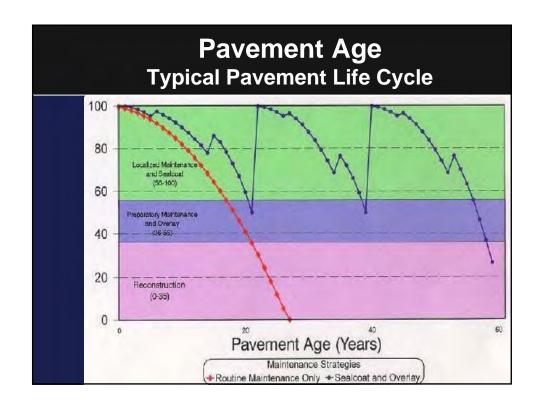
System Characteristics

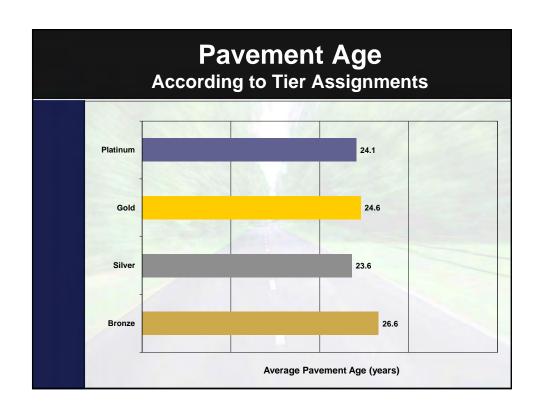
What are the system impacts of the various funding options?

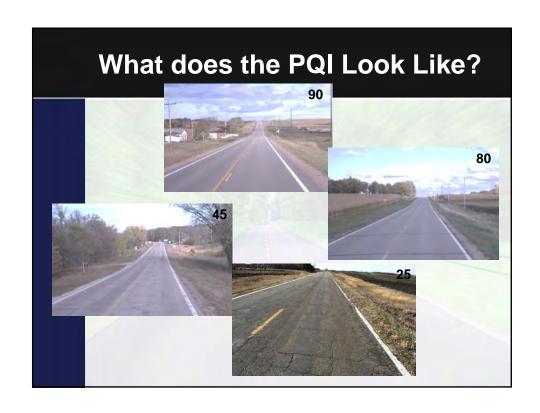
Do the funding options meet the standards set for each Tier?

System Characteristics

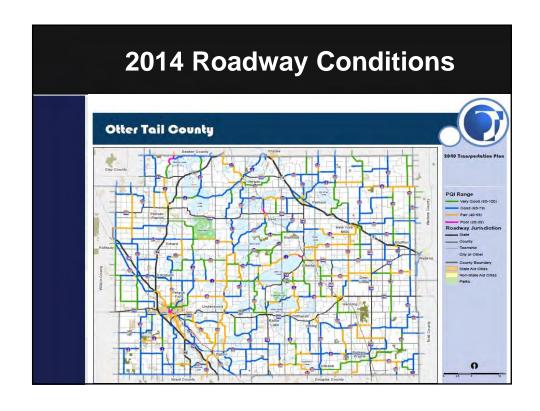
- Tiered Preservation System Platinum, Gold, Silver and Bronze
- Pavement Age
- PQI Pavement Quality Index
 - Ratings performed by MnDOT
 - Even mix of ride and surface condition
 - 100 good, 0 failed

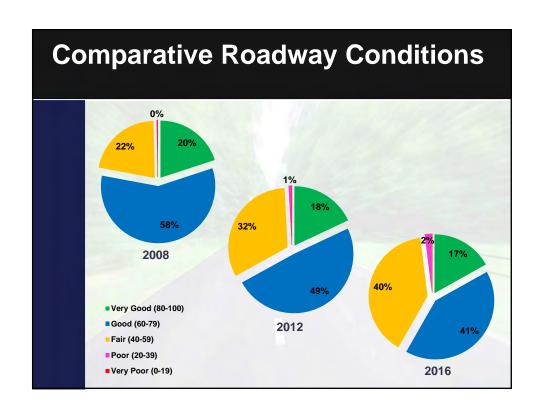


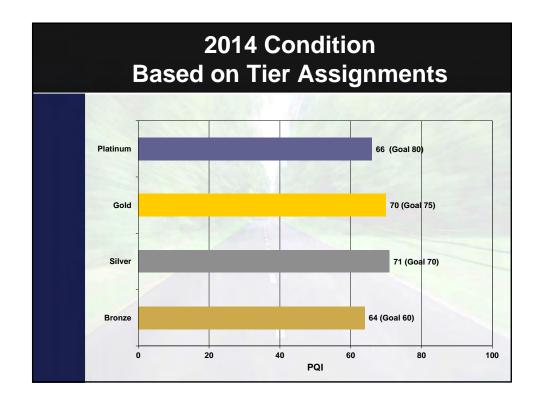








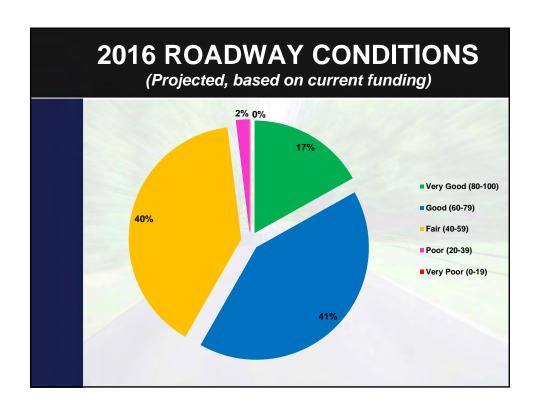


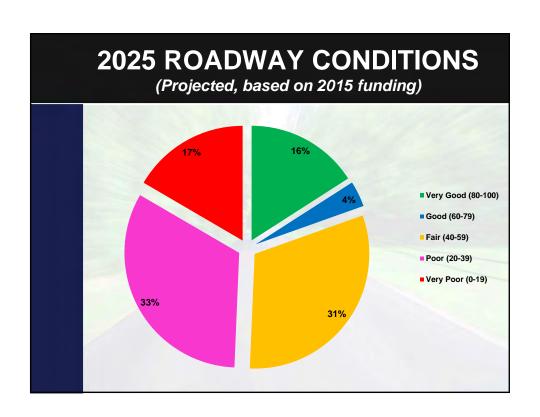


How Do We Meet the Goals?

FUNDING SCENARIOS

- 1 Current Funding (CH and CSAH)
- 2 Wheelage Tax Option (CH and CSAH)
- 3 Sales Tax Option (CH and CSAH)
- 4 Gas Tax Option (CSAH only)
- 5 Wheelage plus Sales
- 6 Maintain Current Condition of 68





2 - Current Funding + Wheelage Tax

Adds an estimated \$568,650/yr to the CH system. Additional increase shifts to the CSAH system in 2018.

How much does \$568,650 "buy"?

Seal coating costs \$0.13/sq ft
 30 miles of seal coat projects
 (~2% of entire network)

or

Resurfacing costs about \$2.37/sq ft
 2 miles of resurfacing projects

3 - Current Funding + Sales Tax

Sales Tax adds an estimated \$ 4,384,000 in year one Increased by 1.5% each year

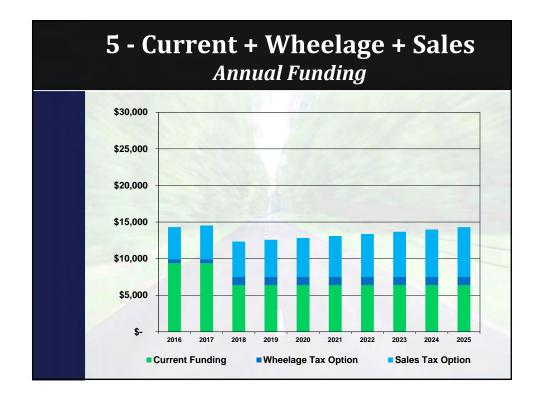
How much does \$4,384,000 "buy"?

 Seal coating costs \$0.13/sq ft
 155 miles of seal coat projects (~15% of entire network)

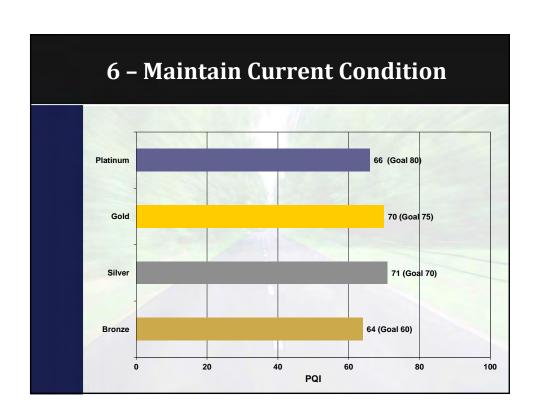
or

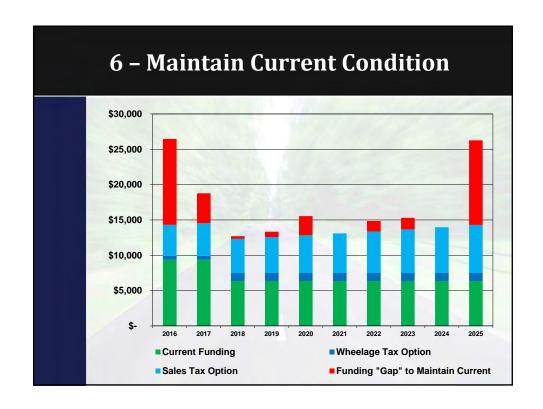
Resurfacing costs about \$2.37/sq ft
 9 miles of resurfacing projects
 (<1% of entire network)

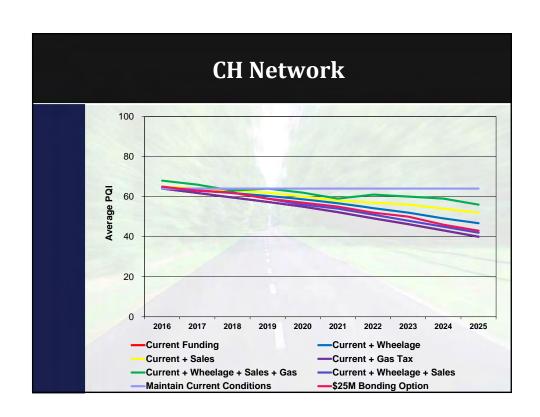
4 - Current Funding + Gas Tax Option If approved, legislative funding would add an estimated \$2,280,000/yr to the CSAH system How much does \$2,280,000 "buy"? Seal coating costs \$0.13/sq ft 120 miles of seal coat projects (~13% of CSAH network) or Resurfacing costs about \$2.37/sq ft 6.5 miles of resurfacing projects (0.7% of CSAH network)

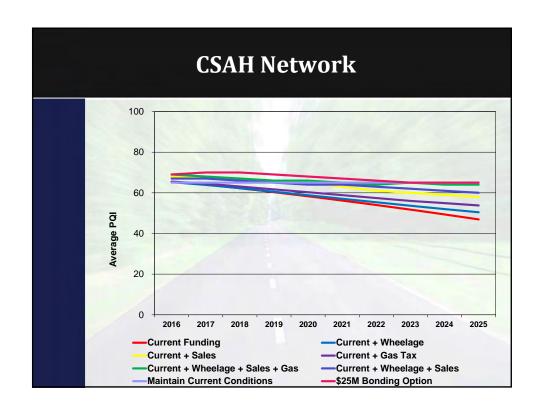


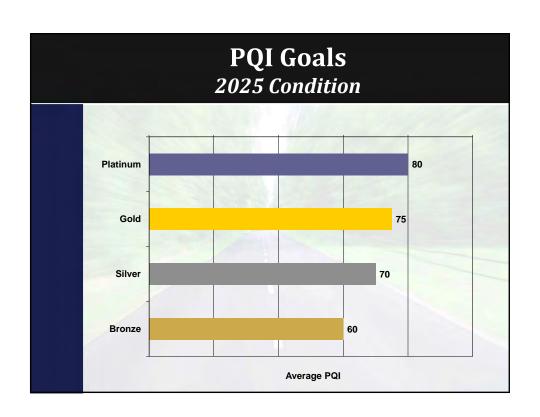






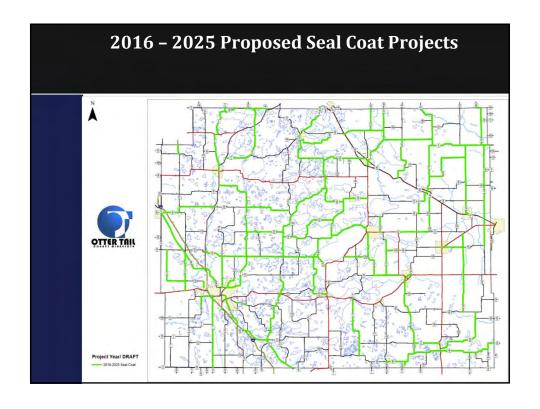


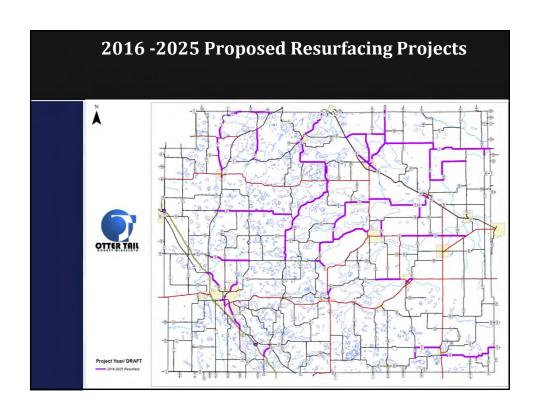


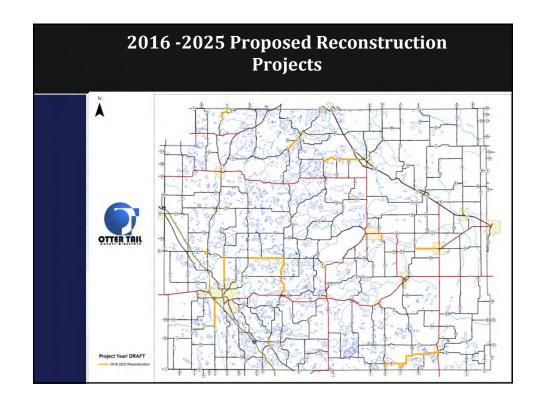


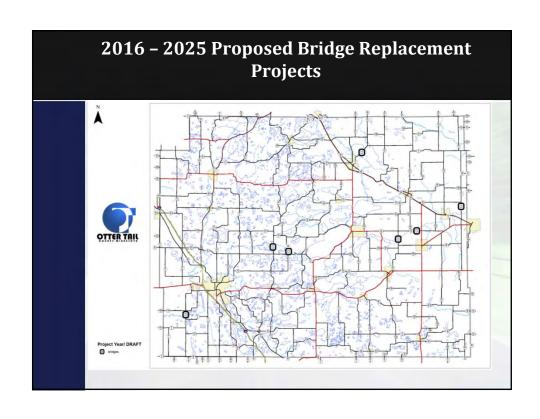










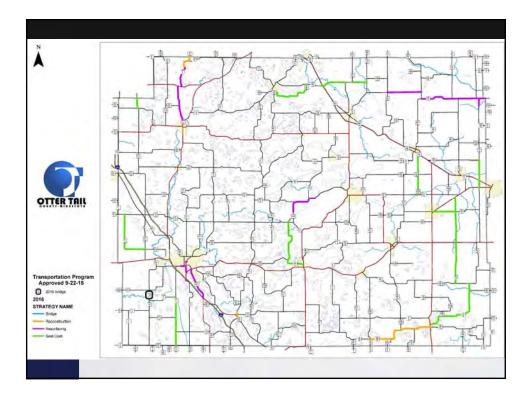


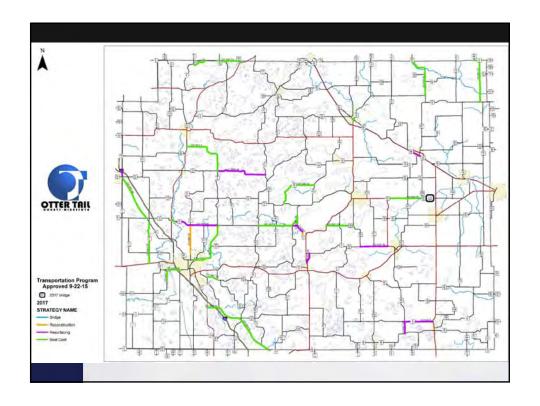
Conclusions and Outcomes

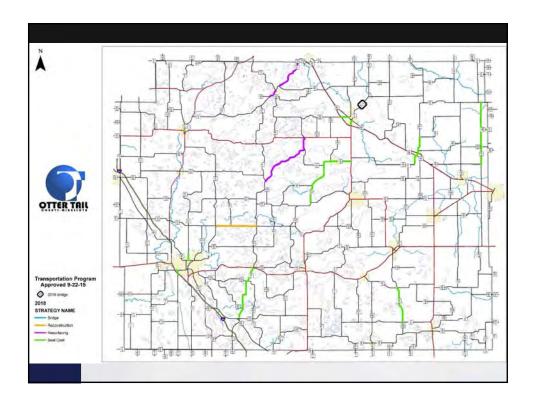
- Public Outreach and Education
- Asset Management System
- Accurate Data
- 25 member Plan Steering Committee Involvement
- Provides for an Annual Plan Update Process
- Provides Resources for Plan and Plan Updates
- Provides a Time Frame to "Do It Right"
- Data Driven Project Selection Process
- Identified a Long Range Vision
- Public Understanding of What the Future Holds

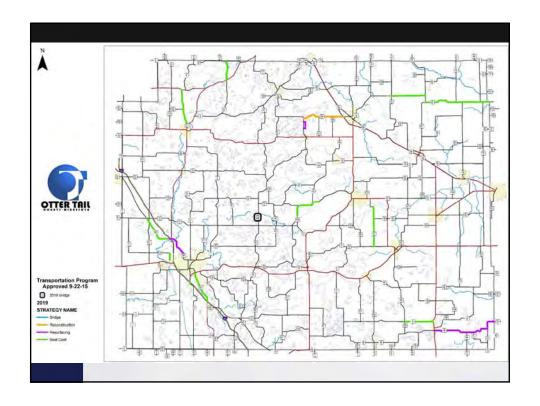


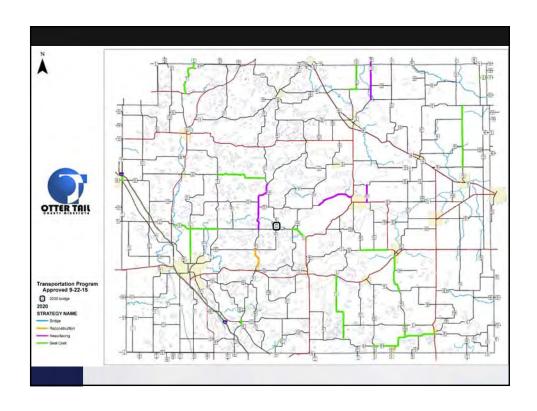


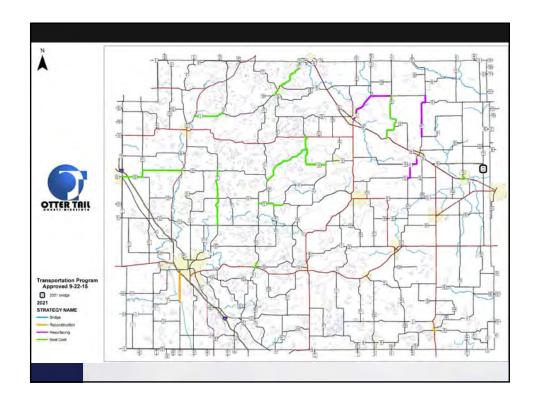


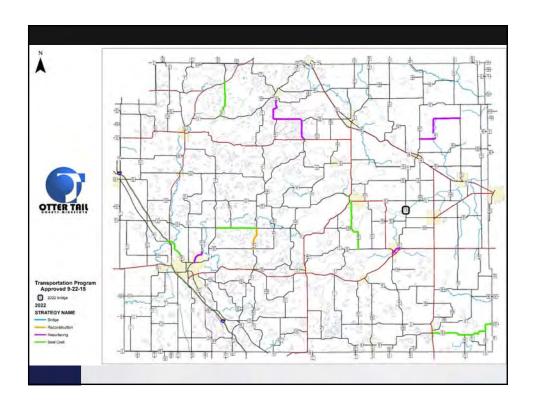


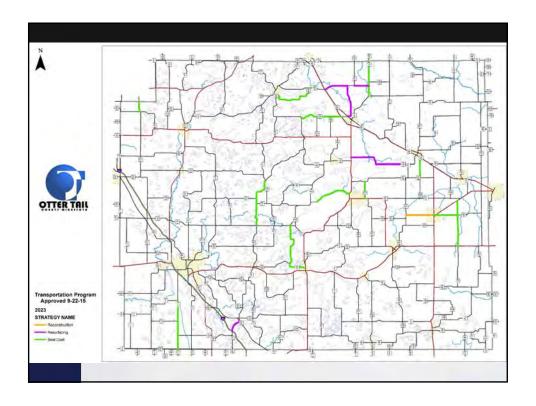


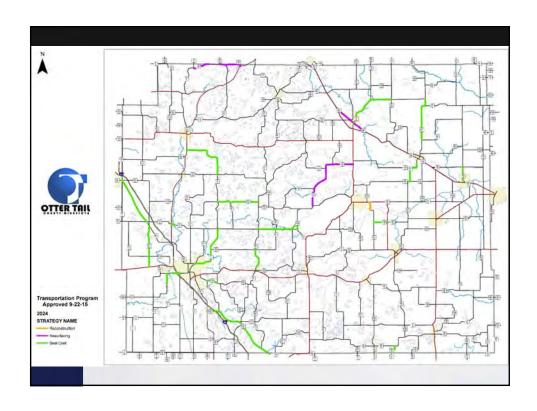


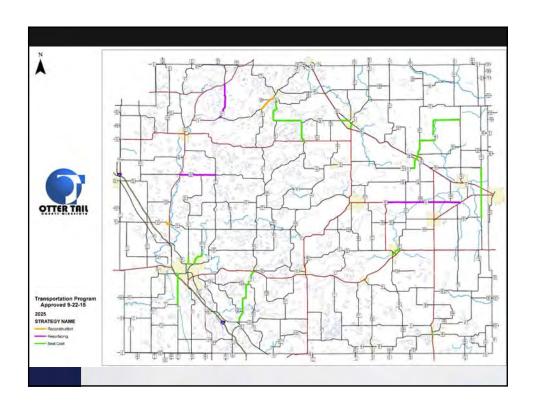












Comprehensive Drainage Management Project in Morrison County, MN

Mike Becker, Morrison Soil And Water Conservation District

John Kostreba, Morrison County Public Works

- Morrison County

COUNTY BASICS:

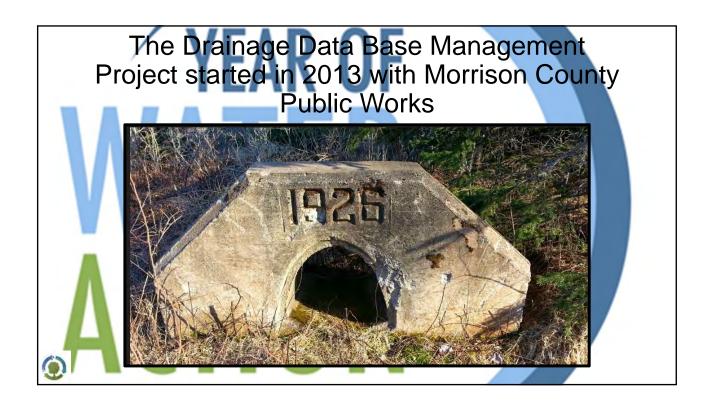
Morrison County has an area of 737,783 acres. Approximately 202,000 acres (27.4%) are forested, 198,500 acres (26.9%) are pasture and grasslands, 150,300 acres (20.4%) are row crop agriculture, 122,100 acres (16.5%) are wetlands, 19,700 acres (2.7%) are open water, and 45,200 (6.1%) are urban and other uses.

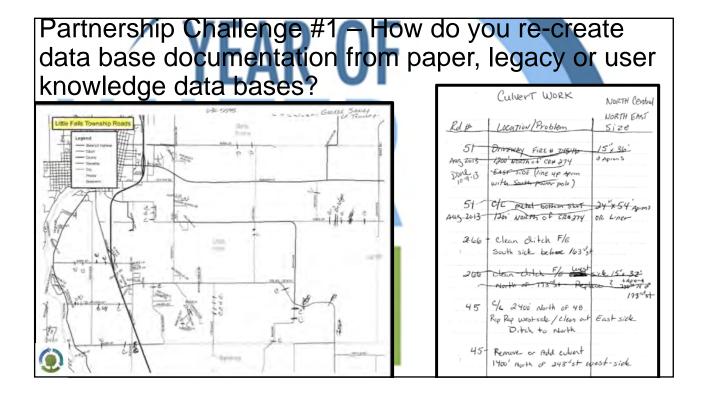
The scope of this plan is the entire area of Morrison County, which includes 16 cities and 30 townships.

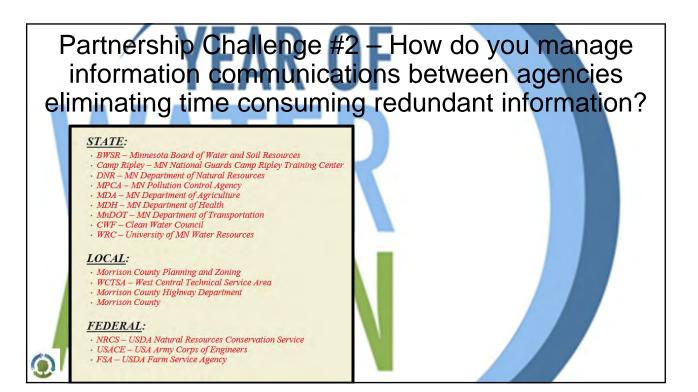
From 2000 to 2010 the population in Morrison County increased by 4.7%, the 34th fastest growing county of Minnesota's 87. Much of this growth was concentrated in the cities of Royalton, Pierz, and Randall, with Two Rivers and Elmdale Townships also showing three figure increases. The following map shows the breakdown of population increases by minor watershed:

Townships Carrier Rocky Carrier Rocky The Rocky

Figure 1. Morrison County Cities and











Morrison County and

MSWCD chose to use a

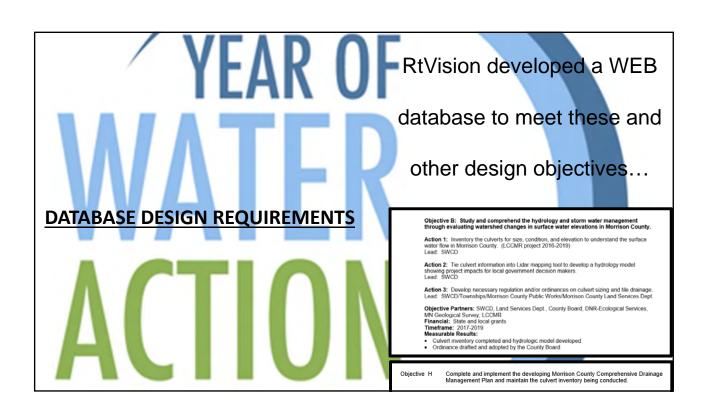
CUSTOMIZABLE

Data Base Management

System to support agency

OPTIONS of the Drainage

(Water) Management Plan



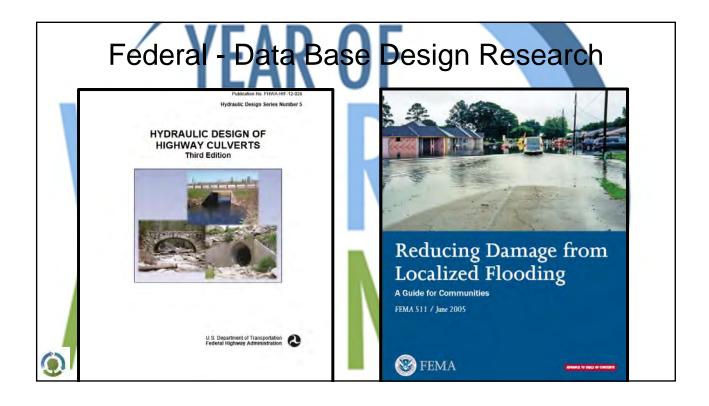
Customized Data Base Design challenge:

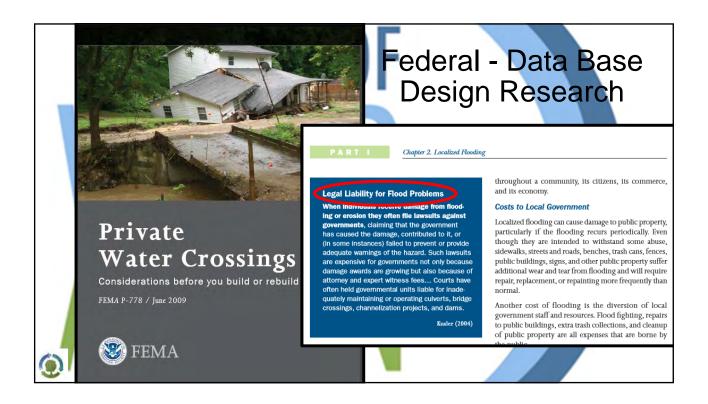
How do you track the wealth of data available from multiple agencies who provide advice and recommendations for drainage activity that will create useful information for Counties and Townships?

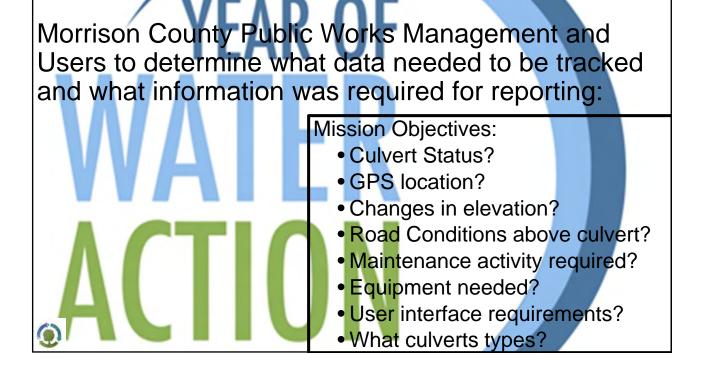
"Research, Interviews and Development"





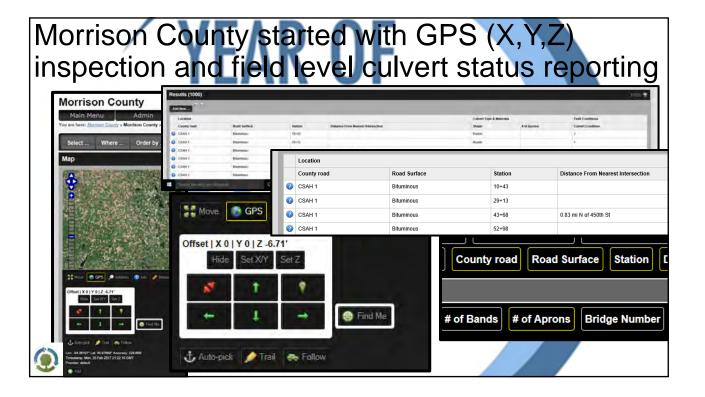


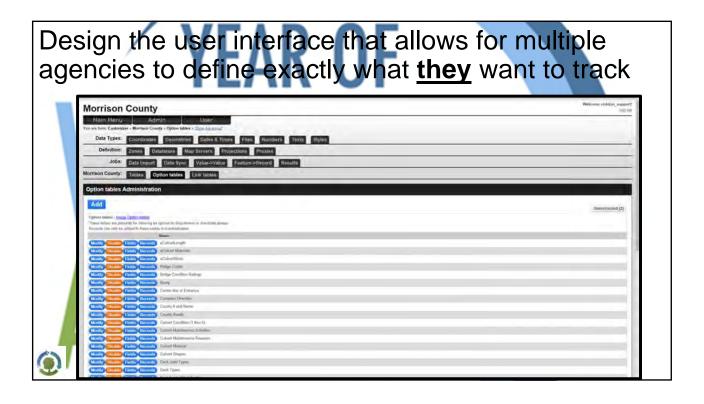


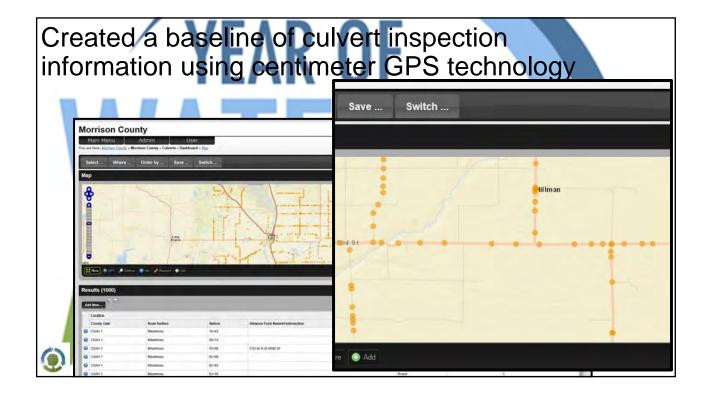


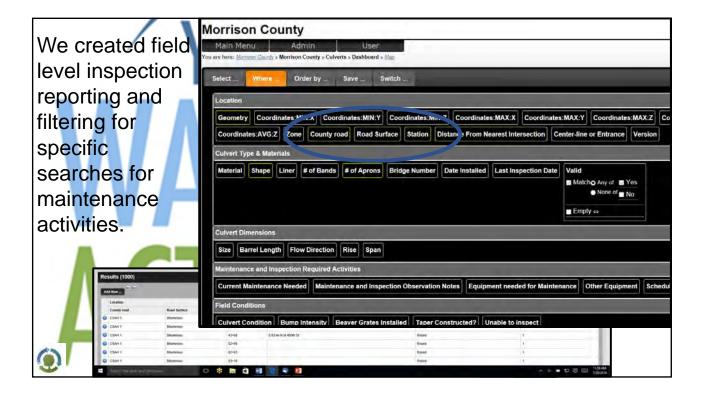


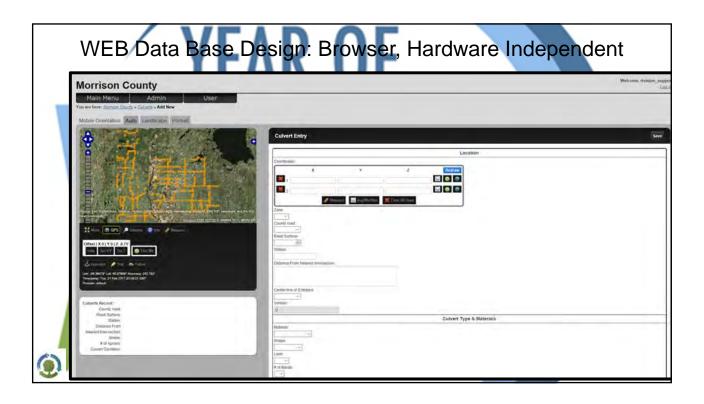


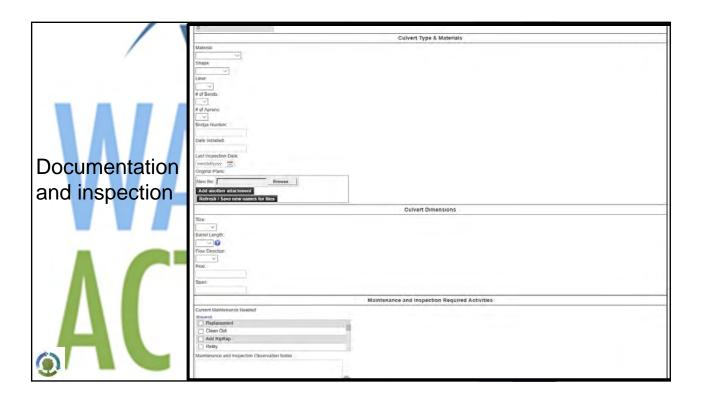


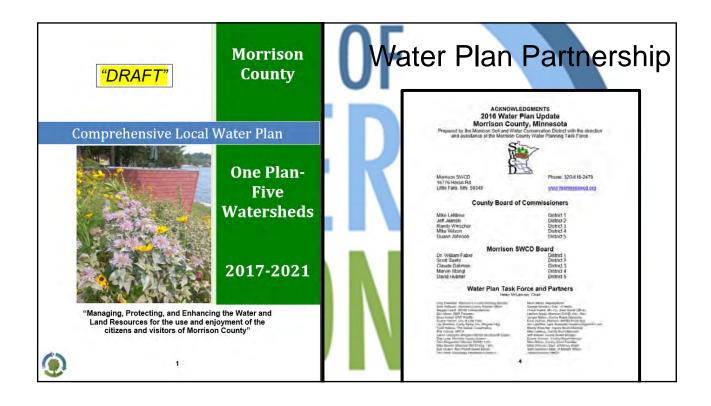


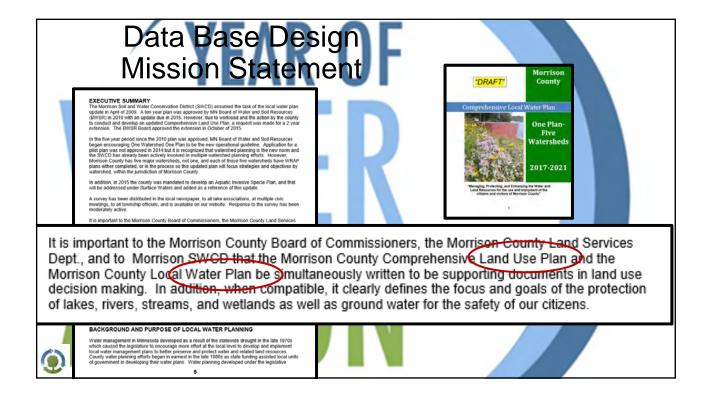


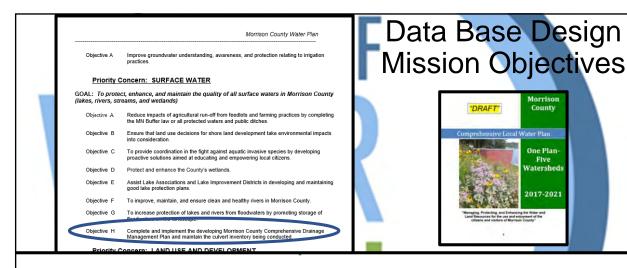












Objective H Complete and implement the developing Morrison County Comprehensive Drainage Management Plan and maintain the culvert inventory being conducted.



IMPLEMENTATION PLAN

The following goals, objectives, and actions are a general template of the strategy to be undertaken in implementing this plan. All actions in the following section will be reviewed by the Morrison County Local Water Plan Task Force and updated as necessary. An annual work plan, developed by the

1

Objective B: Study and comprehend the hydrology and storm water management through evaluating watershed changes in surface water elevations in Morrison County.

Action 1: Inventory the culverts for size, condition, and elevation to understand the surface water flow in Morrison County. (LCCMR project 2016-2019)
Lead: SWCD

Action 2: Tie culvert information into Lidar mapping tool to develop a hydrology model showing project impacts for local government decision makers.

Lead: SWCD

Action 3: Develop necessary regulation and/or ordinances on culvert sizing and tile drainage. Lead: SWCD/Townships/Morrison County Public Works/Morrison County Land Services Dept.

Objective Partners: SWCD, Land Services Dept., County Board, DNR-Ecological Services, MN Geological Survey, LCCMR

MN Geological Survey, LCCMR Financial: State and local grants Timeframe: 2017-2019 Measurable Results:

- Culvert inventory completed and hydrologic model developed.
- · Ordinance drafted and adopted by the County Board

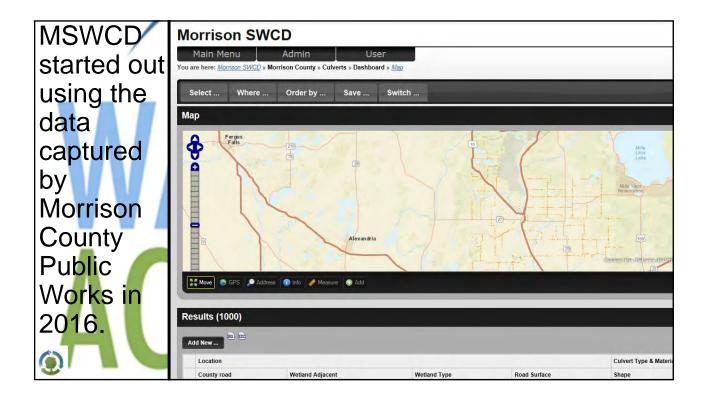
Objective C: Ensure that land use decisions for shore-land development take environmental impacts into consideration.

30

Data Base Design Mission Objectives

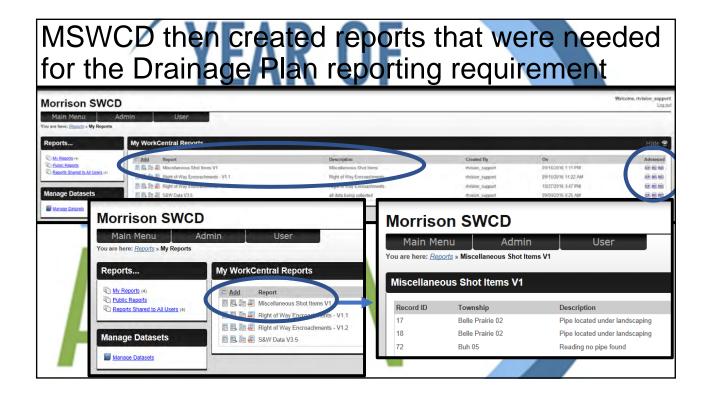


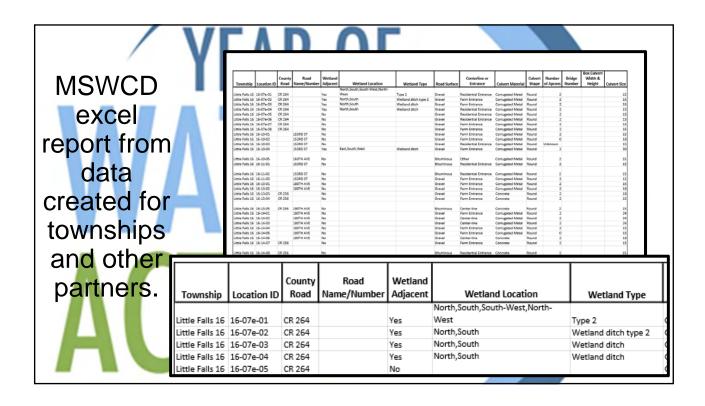


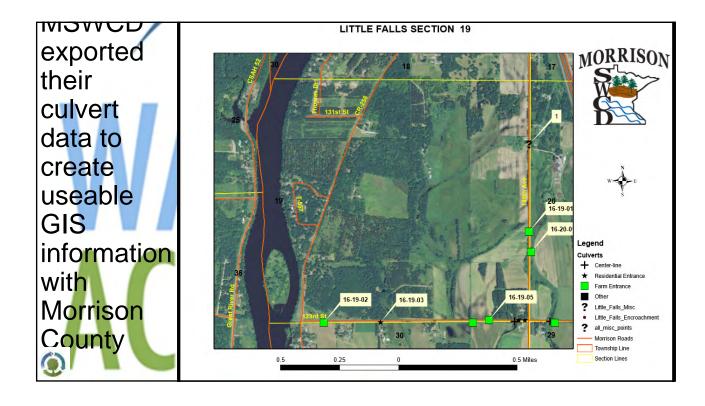


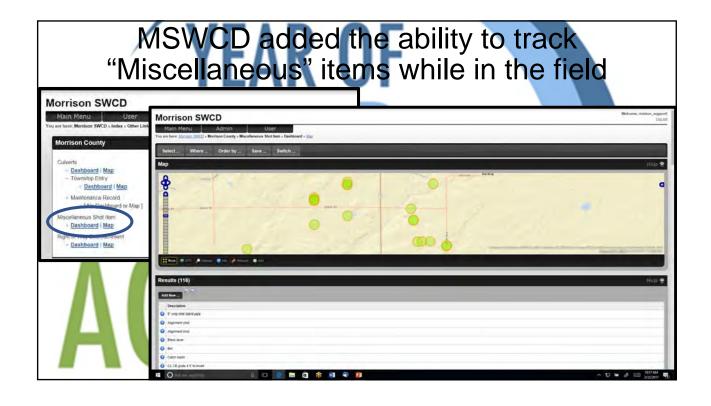


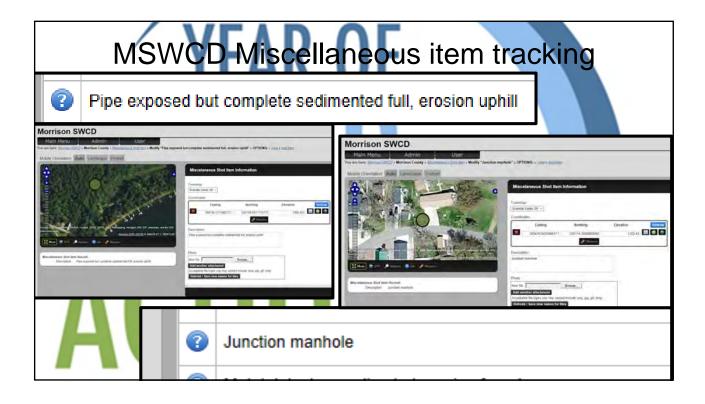






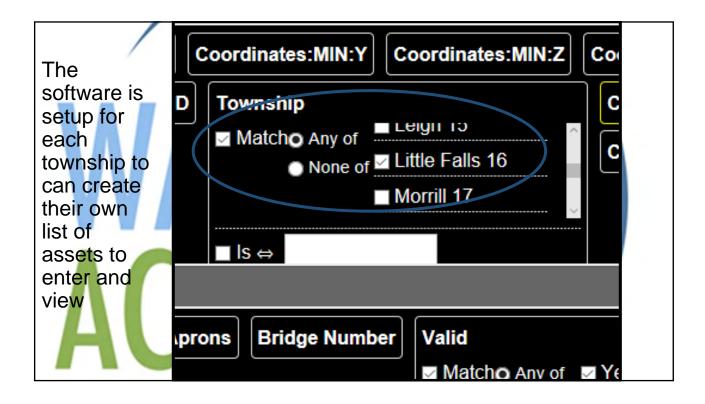




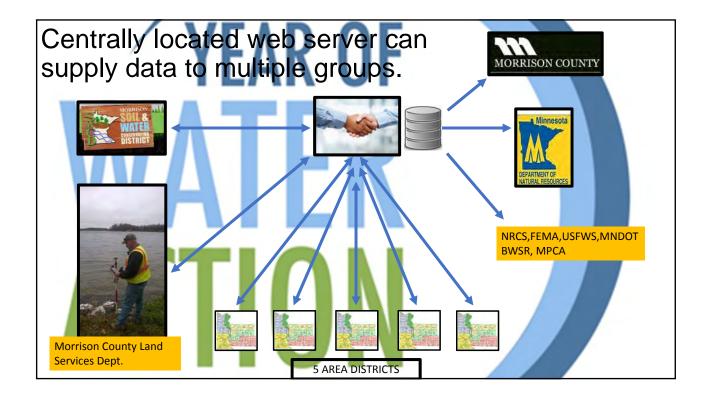


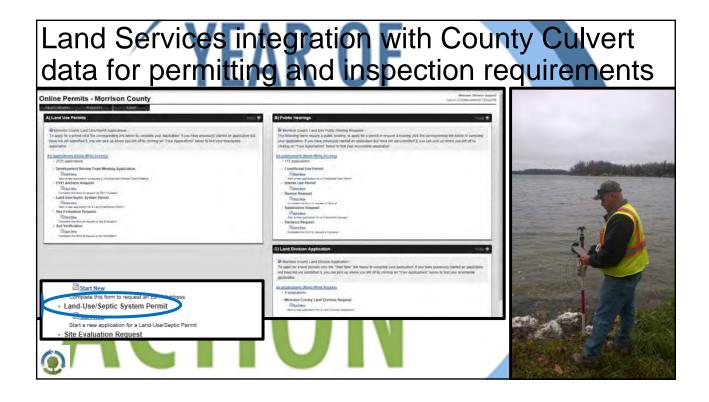


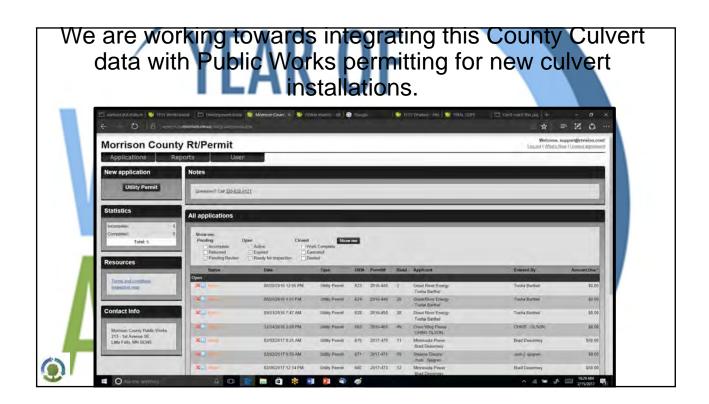


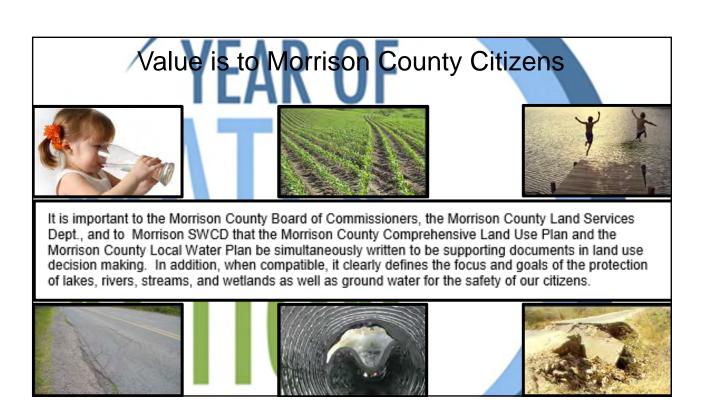


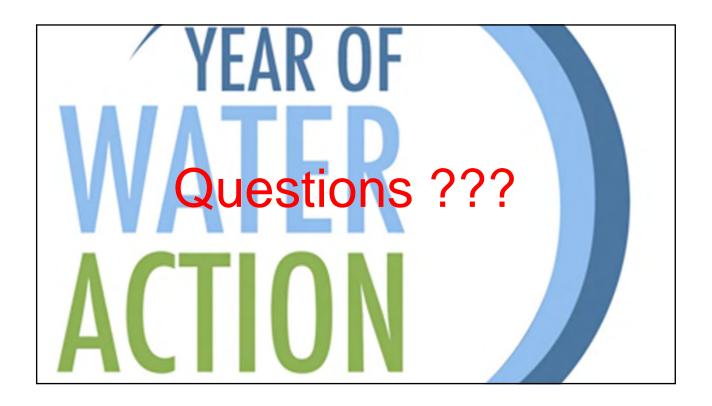


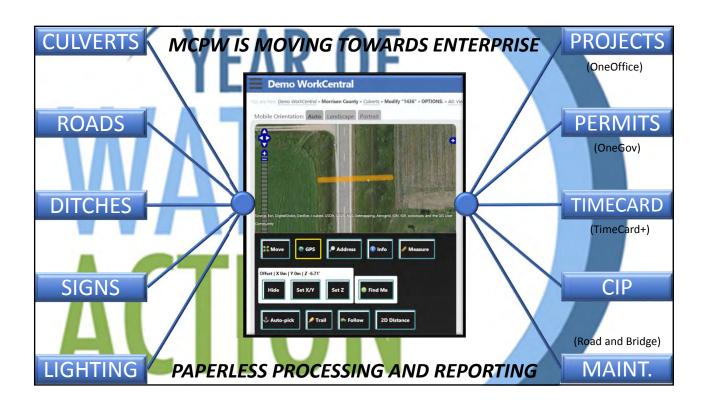












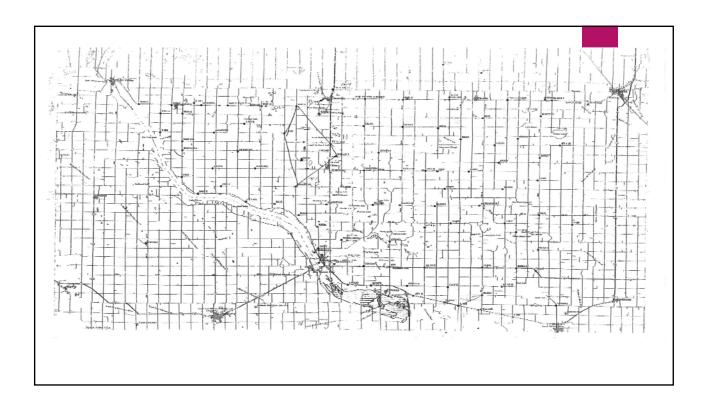


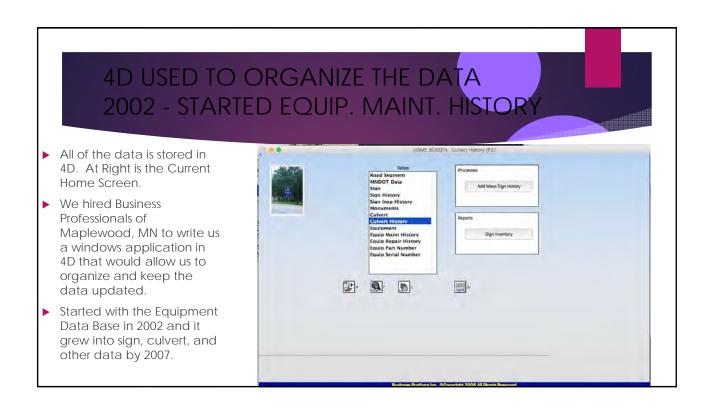
SOME HISTORY BACK TO 2000

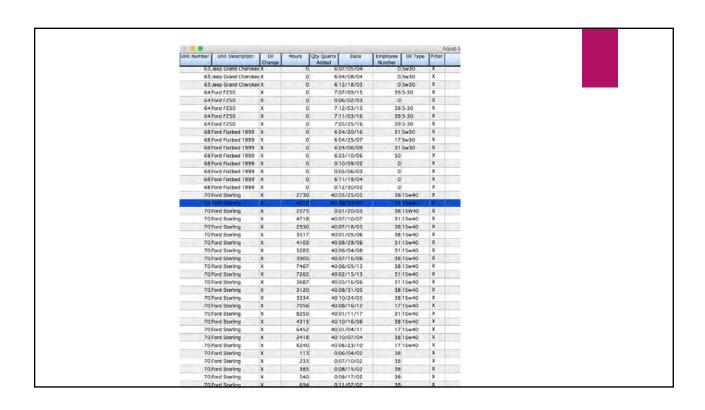
- Big Stone County was doing surveys with total station equipment.
- Monument (BM) and sign Inventory was kept in a D-Base file organized by roadway segment.
- · Station, offset Lt or Rt, and elevations were kept for each bench mark we had out there.
- Sign Type, Road Station, and Lt & Rt were all kept for each sign. No condition data or installation date was kept.
- Culvert Inventory was kept in 3 ring binders organized by roadway segment. Culvert size, type, end section data, and road station were all kept in the binders.
- No elevations were kept on culverts in the 3-ring binders and no condition information or date of installation was kept.

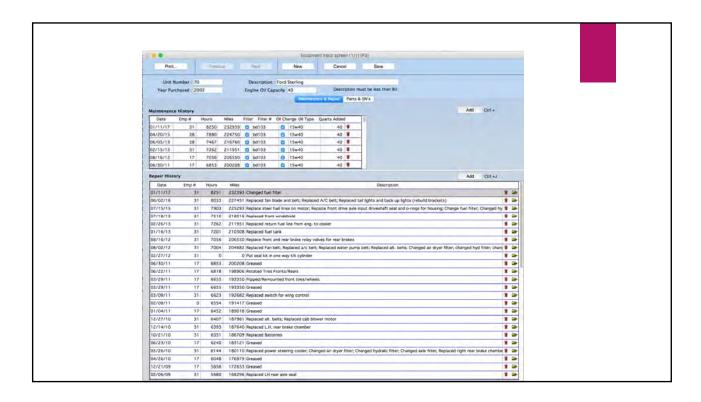
HIGH ACCURACY REFERENCE NETWORK OR HARN IS COMPLETED in 2001

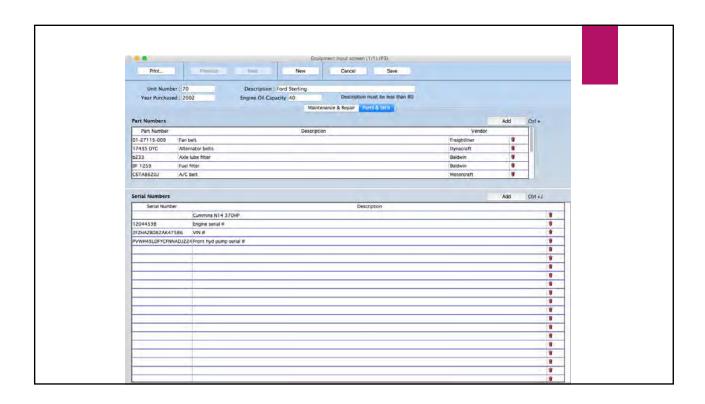
- ▶ In 2000 MNDOT was ready to put in a HARN or HIGH ACCURACY REFERENCE NETWORK of bench mark monuments.
- ▶ MNDOT District 4 asked if Big Stone County wanted to install a network at the same time.
- ▶ Spring of 2001 the NETWORK is installed with Total Station survey equipment.
- ▶ State installs 27 monuments along state highways about 3 miles apart on average in a grid pattern trying to keep the distance from any intersection to the closest two monuments down to 3 miles or less.
- ▶ Big Stone County installed about 80 monuments in the same fashion county wide.











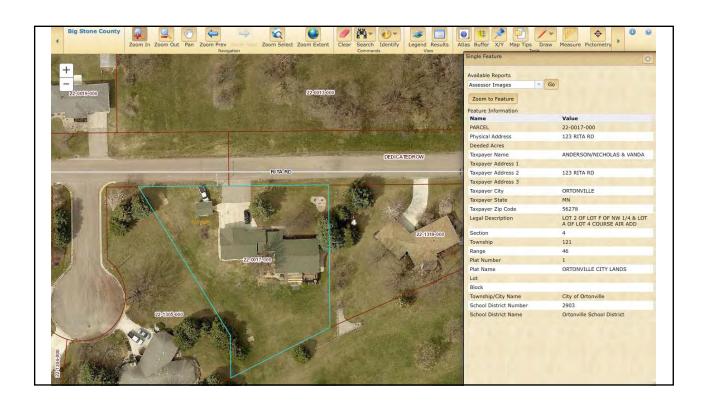
BIG STONE PURCHASED GPS SURVEY EQUIPMENT IN 2001

- ▶ Big Stone County purchased GPS survey equipment in fall of 2001.
- ▶ The Plan: Collect section corners for Big Stone County Parcel based Map.
- County had a parcel based map completed by our RDC staff but it was out of date, upgrades were slow and expensive, and it was not based off of a large number of known section corners
- ▶ Highway Techs start collecting section corners in Fall of 2001. Trying to learn the ropes of the new GPS Survey Equipment at the same time.
- ▶ Section corner collection continued for 2-3 weeks each spring and fall.

PRO WEST IS HIRED TO COMPLETE PARCEL BASED MAP IN 2004

- ▶ In 2003 Big Stone County Recorder and Auditor started to get serious about hiring a consultant to create and manage a Parcel based map.
- ▶ Highway Department starts to expedite the collection of section corners.
- In 2004 Pro West & Associates was hired to complete the Parcel based Map.
- Section corner data collection is completed in 2005. We collected less than half of all corners out there.
- ▶ Parcel based map is largely complete and up on the web by 2006.





ROAD INVENTORY COLLECTION BEGINS IN 2007

- ▶ In 2007 Big Stone County began planning for collection road inventory items.
- ▶ This was a slow process in the beginning. We were trying to figure out what the data base fields needed to look like.
- ▶ The Decision: Sign data, culvert data, and CL of approaches were the initial target inventory items.
- ▶ Sign data collected: Location, type and size, direction of face, and date of install. We did not know the date of installation on every sign but we had started putting little stickers on the back of each sign with date information years prior.
- ▶ Culvert data collected: Location of Inverts, Length, and condition (poor, fair, good, excellent), and whether it had end sections or not. We also made comments in the data base as to condition such as badly rusted, separated, significantly out of round, etc., and we started to plan for the collection of the year of installation for each sign.
- ▶ Approach data was included in the Culvert database so we had a record of dry approach locations as well (no culvert).
- ▶ County Road Inventory continued into 2013 when collection was completed.

TOWNSHIP INVENTORY COLLECTION

- In spring 2012 a letter to each township was sent explaining that we could and would collect their Sign and Culvert data and why this would be beneficial to them. I also went to the annual township meeting that year to present and discuss township data collection.
- ▶ Offered to collect Township inventory for \$100.00 per/mile. Note: I thought the costs were going to be closer to \$200.00-\$400.00 per mile but board members had some say in this decision. In the end, \$225.00-\$250.00 per mile was pretty close to actual cost.
- Offered to update their inventory annually for a flat rate of \$300.00 per township plus labor over ten collection points so long as they reported changes and upgrades in their township annually. <u>Note</u>: This turned out to be a pretty accurate cost estimate even with field checks on new culvert installs.
- Townships were asked to sign a signature block on the letter stating they wanted or did not want us to collect their data.
- ▶ Initially 7 of the townships were happy to have us collect their inventory data and 7 townships were apprehensive about it or were not interested the least little bit.
- Later that year we had 10 of 14 townships on board.



Big Stone County Highway Department

48 MEAN SOLA PERRET NORTH • POTROL 95 • OKTONYULU, MN .=278 TROST (CARROL 2**4) • LAX (CARROL 2**7)

MEMORANDUM

TO: All 3to Stone County Towns vice

FR: Nick Anderson S.o Stone Courty Forther

DT: April 30, 2012

RE: NEW SIGN REFLECTIVITY AND REPLACEMENT REQUIREMENTS

Big Stone County Highware Department is obtaining to gather Township Road inventory data on your behalf to raise our Tevenships came into carnollance with the new State and Faderal area summaring near requirements on modestery symmitrium reflectivity. Under this new text, by early 2012, you are required to have a policy in place at the servable loved in the vego stated to next the new text. By early 2012, you are required to have a policy in place at the servable loved in the vego stated to next the new septements and you have to the following your restablished cellers by 2012.

Attachec is the policy Big Stone County a going to follow for County road signs. If you as choose, see will collect paur inventory on your behalf over the next 3 aumners. When we do the collection we all the decding which donn need to be replaced insundicately and which cones can nerval for the time being. From my own inspection or les telements possible and system come of your can appear to the extention possible and as the first collection groups. Once we have your signs collected and not declared see well send you talmando annually on which signs you need to be replacing in the conting year. Sign replacement will be your responsibility, but we can being out about as much as so laveled in the sest. We will not have time to perform all sign maintenance within Big Stone County, but we will lay to put the service of the production of the production of your system need appraiding annually.

While so as in your knowfully collecting your sign information, we will collect your clivest and approach information as vall. We are insected in collecting culters size, legal, coation, and condition. This information will shall be both the County and the Towership gain at better understanding of deninees patients and problems within Big Stane County. Approaches without a collect will also have their locations collected. The process for collecting the culterstands will require that each township gate a bundle in their their county highways Department and areas informations how to see the left. Then each between the best of the product of the process and township will be requised to go put a laid in the click in "elops just off the sendings made on earl of each of your consistence charters. We will not need you to maint approach achieves as we be inspecting at Bidd and shrewny approaches no part of the process. All culters training preparation for a process. All culters training preparation for an end or benefit and the process. All culters training preparation for an end or be an expensed collection or rade will need to be

marked for us. If you sign ento this insercory and exten offert, in the vessite before us shall our fieldanch in your bosenhile, so will contact you to come get your fall and constraince marking center in a valent boselboile or your road epither. List, the all meet all bunch are marked winters you before these has actived. Dut it is not wish only more. Therefore, we will meet gut to mark any find approach that you are center have in a buried culters in the contract and any other centers you less there is a center during the piece. If we find not great your total the list of building is a longer of piece. If we find any quiters it will not be induction in the distance.

The cost of having un collect your sign, colvent and approach inventory will be \$100 per rails for your certified road segments. There will be an additional small fee for collection of data you best you should have off of your certified condency against.

Cace ere here year Tovenship collected and interfered with the County QSS distributes, we will be intuing you were manner and prosecord to access the internation on the county may that the internation of your properties of the entire that the internation of the research to the date, if any the entitle does not here viseding access). Annually, when we need act access a few particles of becaming energy placing caces, a well since include a request for submission of becaming energy feet greaters, and the properties of the entire year added or upgraded othersa, approaches and digits the provious year. We will follow up with the collection of date on these need installed or upgrades.

The ensural five for us to beep this deat current on your behelf is going to be set at \$500 per year for \$0 or less many data clase within your branchip and aduled took to the Highway Deathmart for collections at most than 10 dies. When it he knows, the County needs to increase the fire schedule for materiality the toy-mind data on your behalf, the date on to do so will be at the discussion of the County bloom of your behalf, the date on to do so will be at the discussion of the County bloom of

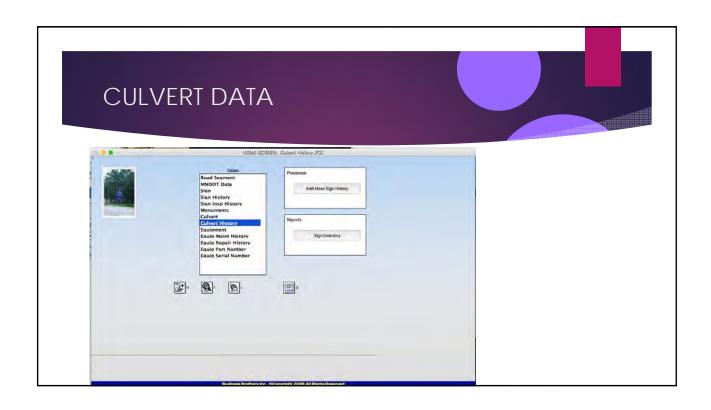
On the positive dide, you will have a loost on to go and look at inventory on a mea that show where you roud inventory is knowned and what it is of inventory in it. If you are densely permitting your liet approaches. But information should be very height in operating that after. If you are not permitting your liet approaches and with its his data will also be height. One once possible, you will have the County Highway. Opportunit assisting you is identified, which aligns send to be replaced and when last englements in this place.

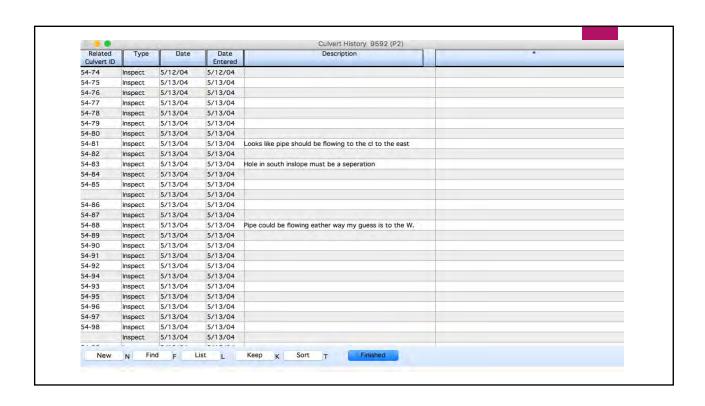
You are saled to eard a copy of this iremonstiden each to the 61g Store County Highresy Cocarmant by June 16, 2012, at the address on the lotterhead with the Information telesy filled is.

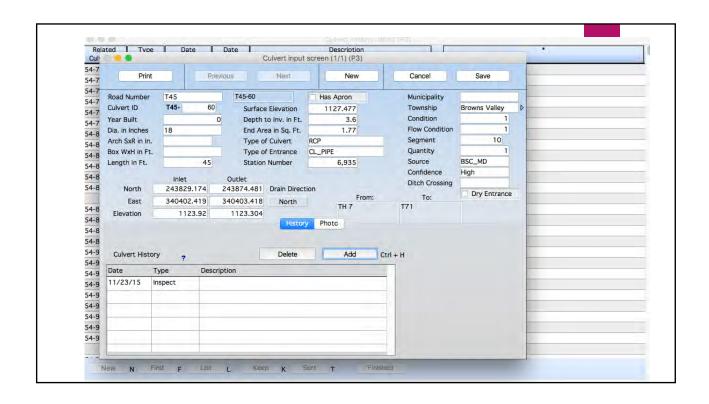
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comatile	Name				
entact:		Ph. No			
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TOWNSHIP INVENTORY COLLECTION

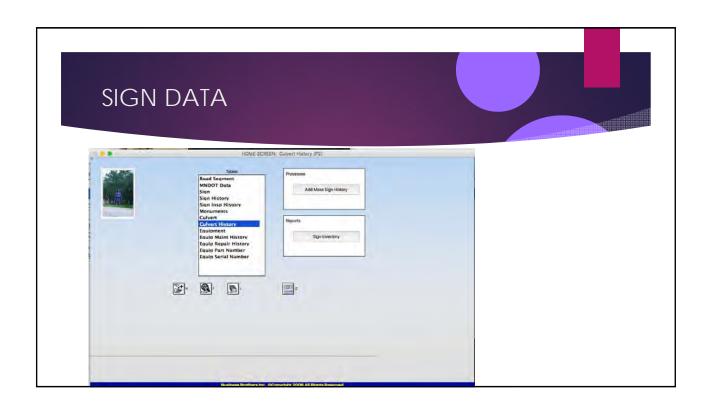
- ▶ We began collecting Township data in the fall of 2012 and continued to collect this data until 2015 in 3-4 week intervals each spring and fall.
- ▶ In winter of 2013-2014 we put our first 4 townships on the map. Eagle View, the company that does our Pictometry flights, has a web based application called Connect Explorer where you can create an account on the web for free and use their site to put your data on a map and you can download their mobile app and view your data from anywhere on a mobile device.
- We created an account for each township individually with a login and password so they could control who gets access to their inventory.
- ▶ Township inventory was put on the map each year in the year that we had that township data collected and organized and we mentored the townships on how to use the web application.
- ▶ Sign, culvert, and approach data included.
- ▶ Finished all 14 townships in 2015.

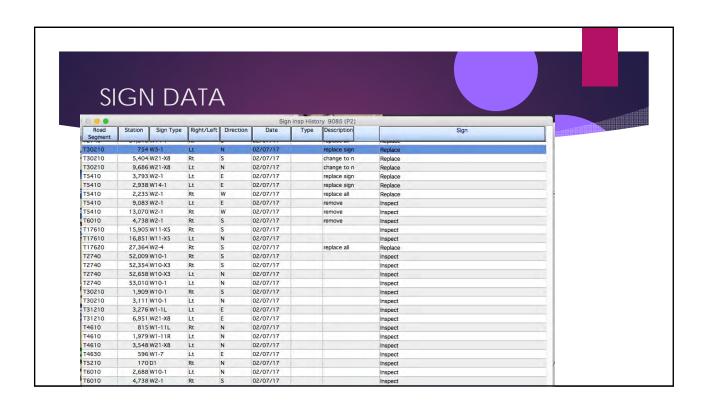


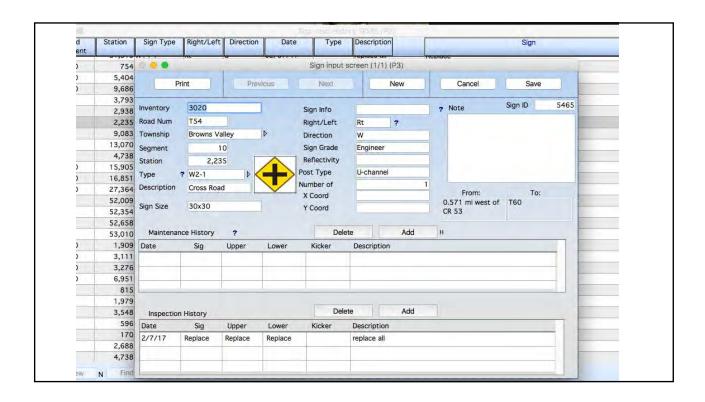


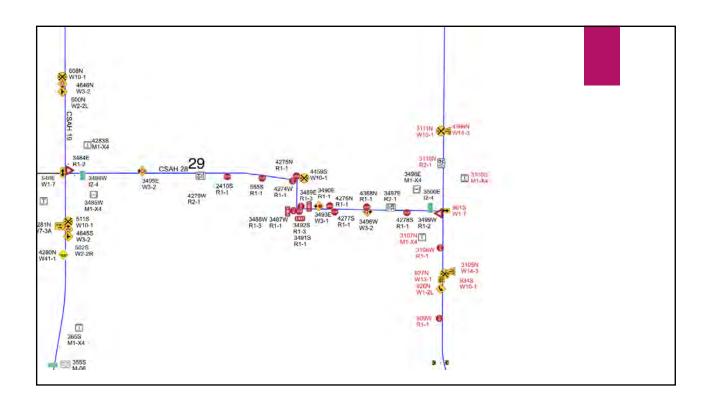






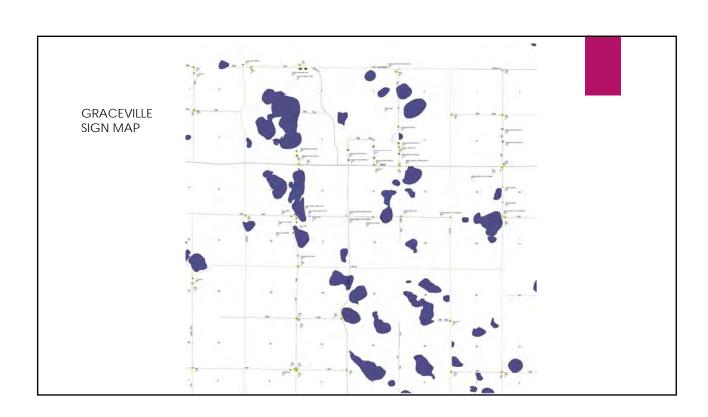


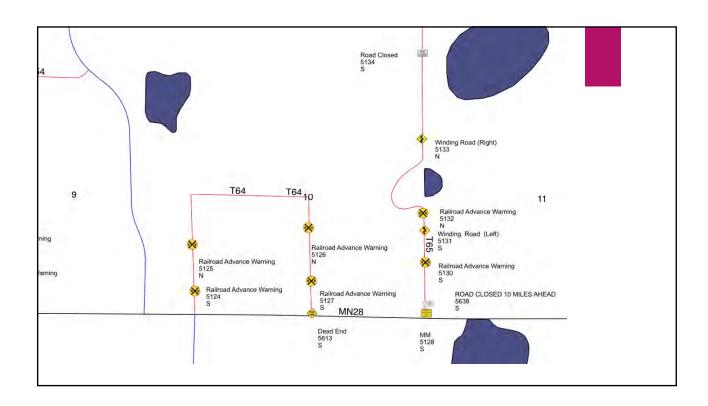




PROBLEMS AND SOLUTIONS FOR GAINNING TOWNSHIP BUY-IN

- ▶ Problem: Most Township Boards need time to absorb the concept of of collecting their data and how it may be beneficial before they decide to pay you to collect it and get it organized for them in a usable fashion.
- ▶ Solution: We needed to explain to them how this will help them manage their signage for the new reflectivity requirements and manage their culverts. And sometimes we had to explain it again, and again, and again.
- ▶ Problem: Townships worry about their liability, and they should! Are they compliant with their signs as far as reflectivity and do they have a need for more or less signage? Do they want big brother knowing their sign and culvert situation? Liability will be the first issue with Township boards. Are we compliant and doing a good job?
- ▶ Solution: Make it easy for them! We print large maps of their inventory every year and they only need then to mark on the map their sign, culvert and approach changes for the previous year and bring the maps back. We do the rest.







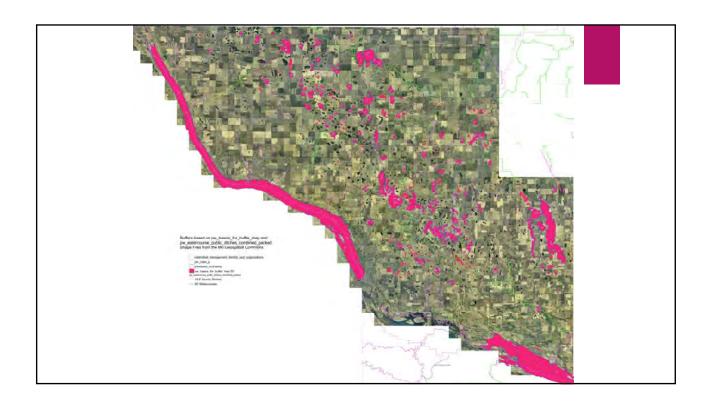
- ▶ Explain that updates to their inventory won't even take a full day. We learned that we could get their updated data up onto the web again within ½ day or less because they don't make a lot of changes on an annual basis and we only go into the field to verify culvert changes or new signs and locations (Which there are very few of).
- ▶ Help them understand that no extensive annual field inspection time is required. We Kept it simple by using the data base to tell us which signs are nearing their expected sign life. A simple data quarry by date installed in the winter and again in the summer (twice a year) tells us which signs need to be updated in the next six months to a year based on their expected sign life.
- ▶ Help Keep costs down by doing the field inspection near the end of a signs expected life but not necessarily changing out the sign every time. The sign tech makes the decision in the field and allows the data base to update that sign or leave it's date un-updated so that it can be inspected again in 6-12 months. NOTE: This is the theory behind our solution to sign life expectancy method of keeping signs compliant with the law, but it works more in reality on an annual basis for us.

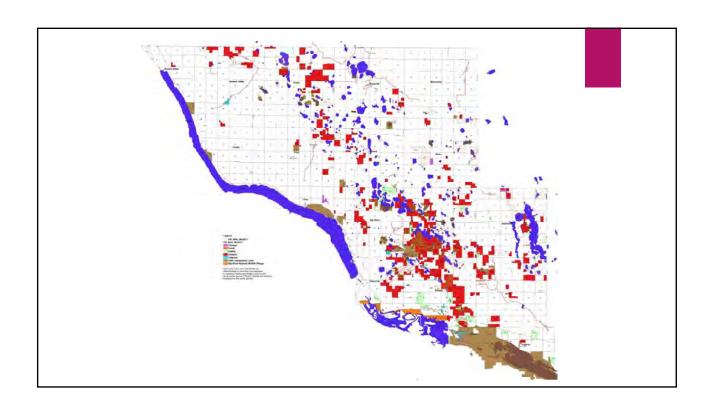
BIG STONE NEVER CHARGED ANY COLLECTION FEES IN THE END TO TOWNSHIPS

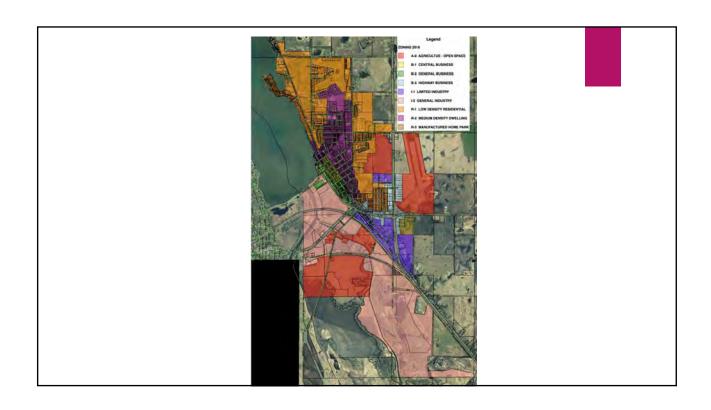
- ▶ After the Data was collected, taking about 2 weeks per township, we started to realize that maintenance of this will not be a big hassle at 2-4 hours per township per year in staff time to make annual updates.
- ▶ In 2015 Big Stone County Board decided not to charge townships for the effort to gain this data which would have been about \$36,000 dollars at \$100 per mile that we had offered to collect it for.
- ▶ Expect to charge for updates and sign installs going forward.
- ▶ One problem still today is that only 12 of 14 townships ever came on board but we still collected and organized the data in all 14 townships.

OTHER ITEMS WE TRACKED FOR BOARDS AND COMMITTEES OUTSIDE OF THE DATA BASE

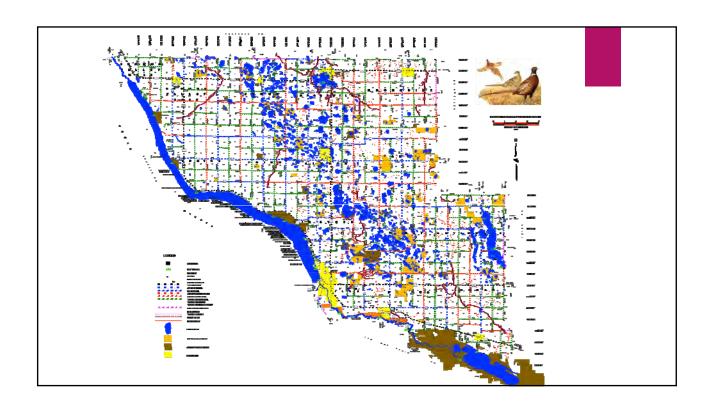
- Planning and zoning Boundaries
- School District Boundaries
- ▶ Commissioner Districts
- Wetland inventory
- ▶ Public Ditches and individual benefits
- Public Lands

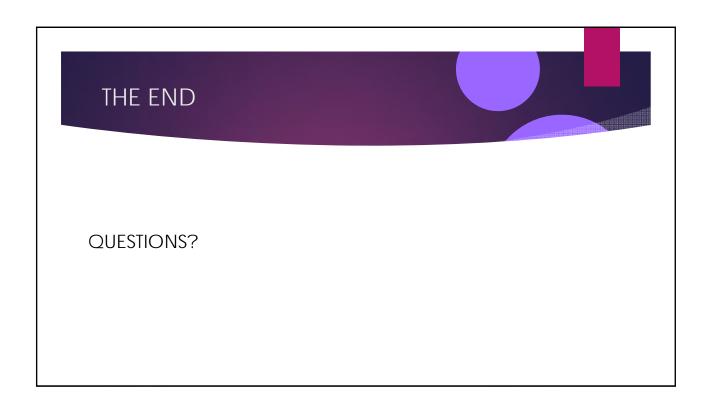












Collaborative Approach to Asset Management Cities of Carver County

Allison Kampbell | GIS Specialist Local Agency Asset Management Peer Exchange May 16, 2017

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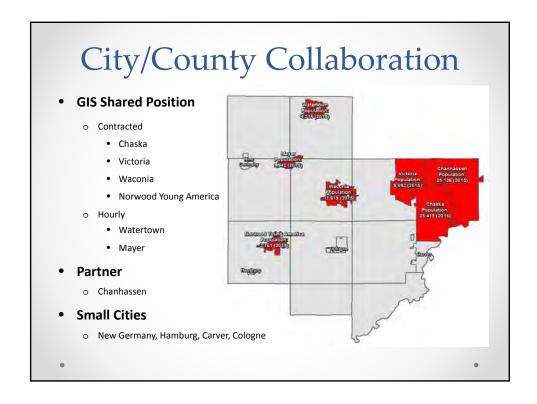
Carver County, MN

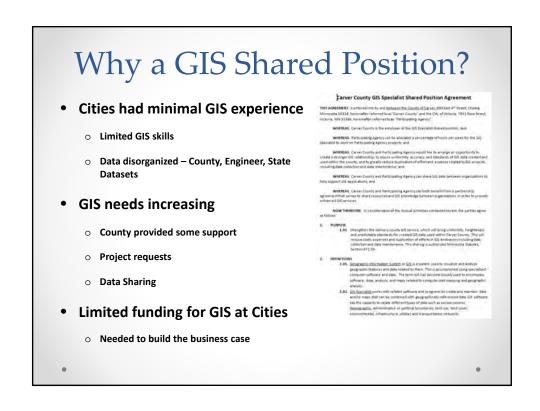
- Part of the 7 County Metro
- SW of Minneapolis
- Rural/Urban County
- Population: ~ 100,200



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Sharing GIS

- Licensing
 - o ESRI Enterprise License
 - o Pictometry Flights and software costs
- GIS Infrastructure
 - County hosts
 - Enterprise geodatabases
 - Security
 - · Web and GIS servers
 - Network Trust/Connectivity
 - CarverLink Fiber
 - o ArcGIS Online Organization

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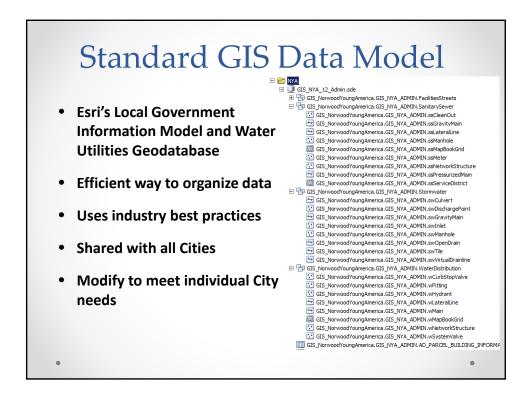


Asset Inventory

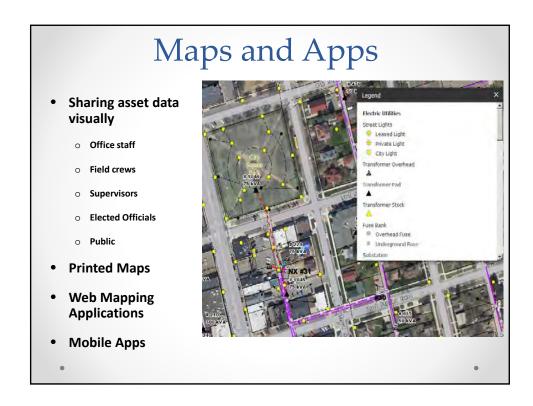
- Initial Datasets:
 - o Water
 - Sanitary Sewer
 - o Storm Water
 - o Electric (Chaska)
 - o Street Signs
- Gather data from sources
- GPS utility locations

.















Data Maintenance

- Document asset's attributes
- Missing assets
- New Developments and Redevelopments
- Inspection and Maintenance records
- Reports and Operations Dashboards



Mobile Data Collection • Collect and update data in the field Collector for ArcGIS Concert Concert









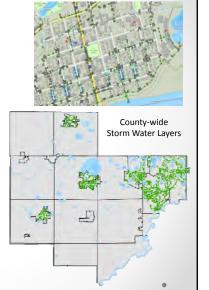


GIS Collaboration Benefits

- Cost Savings
 - o GIS Staff
 - o Infrastructure, software licensing
- Quick GIS startup
 - o Utilize County resources and staff
 - o Setup GIS the same at each city
 - o Share workflows for asset management
- Building strong relationships with Cities and County
 - o Increase communication
 - o Quarterly GIS Meetings
- Increasing sharing of GIS data
 - o Data sharing between City & County
 - o Assets shared with County Departments, Engineers, State Agencies, One Call
 - o Parcels, Address Points, Centerlines, Imagery

What's Next

- Seamless county-wide datasets
 - o Address Points, Centerline, Parks, Trails
- Building a GIS data warehouse
 - One portal for all GIS data Open Data Portal
- Increase mobile inspection and maintenance
- Increase Operations Dashboard to managers



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Conclusion

- Collaboration has advanced GIS at Cities
- Working on building seamless authoritative GIS data
- Asset management workflows streamlined
- Sharing GIS data and resources benefits all



.



Presentation Overview

- Vancouver's pavement network and pavement management system (PMS)
- StreetSaver® program and selection
- How Vancouver is using its PMS



Vancouver's Pavement Network

- 580+ centerline miles (1,800 lane miles)
- Pavements segmented at intersections
- Over 7,000 segments in the system
 - Length, width, number of lanes, functional classification, surface type, etc.
- Multiple surface types



City of Vancouver Pavement Management System - 3

Pavement Management System

- Started using in the 1990's
- Historical condition data as far back as late 90's
- Have used multiple pavement management systems:
 - Centerline
 - Hansen/Infor
 - o StreetSaver®



Pavement Management System - Needs

- Segment Information
- Condition assessment
- Long term budget analysis
- Performance prediction
- Treatment options
- Other



City of Vancouver Pavement Management System - 5

StreetSaver® vs. Paver™

- StreetSaver®
 - Developed by MTC (San Francisco Bay Area)
 - First released in 1987
 - 300+ agencies (mostly on west coast)
- PaverTM
 - Developed by Army Corps of Engineers
 - First released in the late 1970's
 - Agencies and airport authorities worldwide



StreetSaver®

- Database
 - Web based
 - User login information
- Inventory and Work History
 - Section characteristics
 - Can group segments

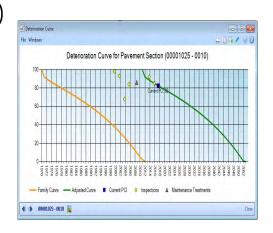




City of Vancouver Pavement Management System - 7

StreetSaver® (continued)

- Pavement Condition Index (PCI)
 - Modified version of ASTM D6433
 - MobileRater[™] application for condition assessment
- Performance Prediction
 - Based on thousands of local agency segments
 - Adjusts for latest PCI ratings and for treatments





StreetSaver® (continued)

- Maintenance & rehabilitation activities
 - Common and user-specified treatments
 - Decision trees
 - Determined based on PCI, functional classification, surface type, and type of distress
- Budget Analysis

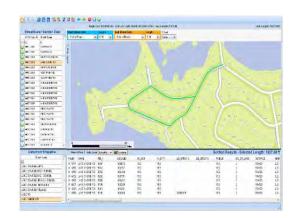




City of Vancouver Pavement Management System - 9

StreetSaver® (continued)

- GIS capabilities
 - Can use agency's system or StreetSaver's®
 - Create maps from models
- Reporting
 - Built in and user specified
 - Training through StreetSaver®



Vancouver

City of Vancouver Pavement Management System -

Choosing StreetSaver® - General

- Cost of program
- Technical support and responsiveness
- Ease of use
- Customizable reporting
- Web based for multiple users
- Used by many other local agencies nearby



City of Vancouver Pavement Management System - 11

Choosing StreetSaver® - Technical

- PCI scoring increase with each treatment application
- Utilize agency specific treatments and project lists
- Performance modeling and analysis
 - Fixed budget or target conditions
 - Speed of analysis
 - Long term forecasting





City of Vancouver Pavement Management System -

Choosing StreetSaver® - Technical

- PCI scoring increase with each treatment application
- Utilize agency specific treatments and project lists
- Can use either a fixed or target budget
- Performance modeling and analysis
 - Model for fixed budget or target conditions
 - Speed of analysis
 - Long term forecasting



City of Vancouver Pavement Management System -

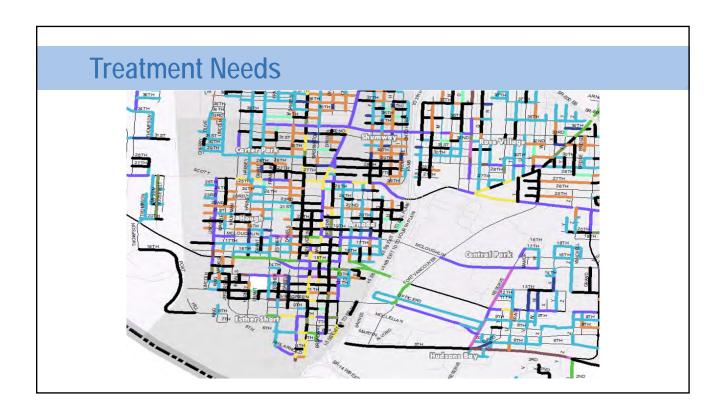
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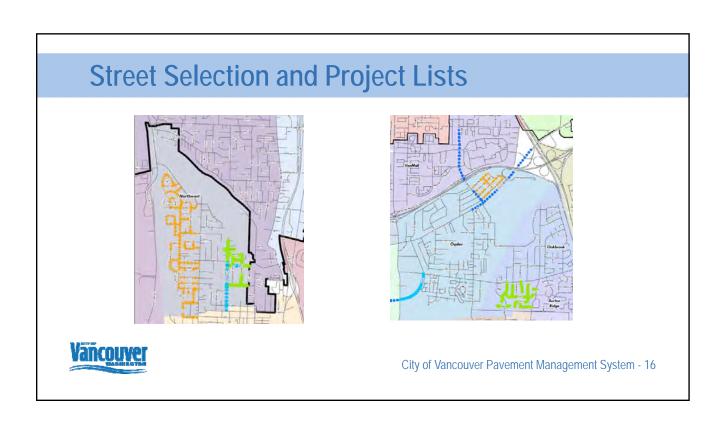
How Vancouver is Using StreetSaver®

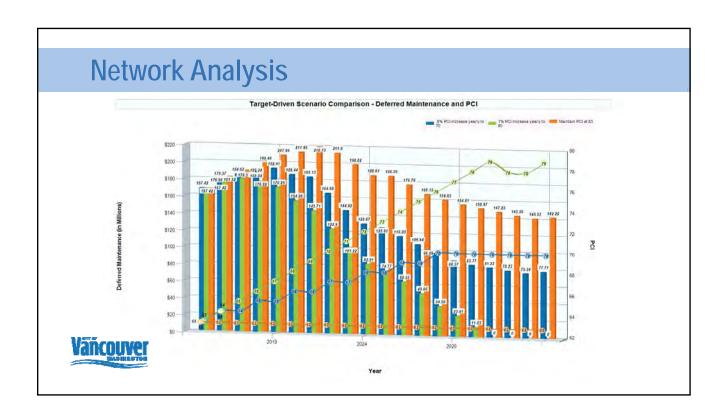
- Treatment needs
- Street selection and project lists
- Long term analysis and funding needs
- Maps and displays
- Reporting
- Presentations to Council

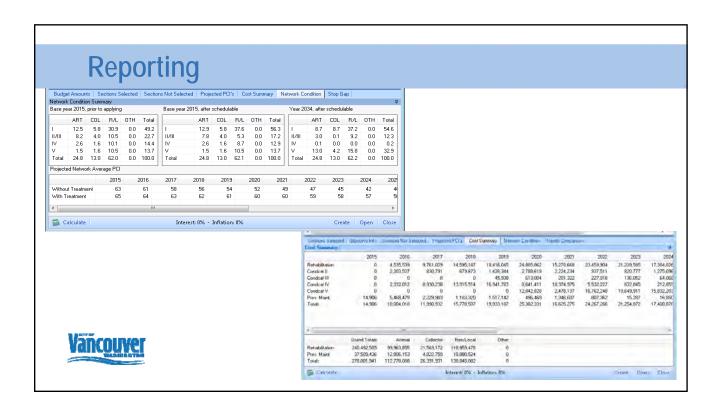


City of Vancouver Pavement Management System -



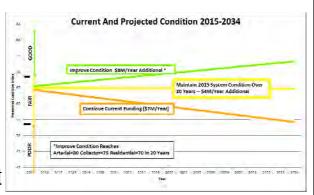






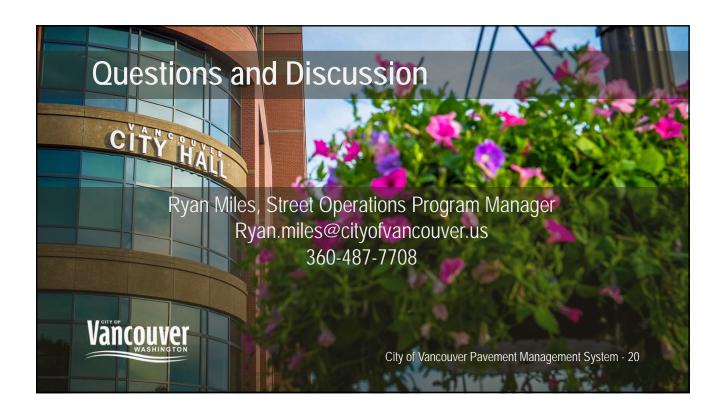
Presentations to Council

- Comprehensive street funding
- Multi-year effort
- Council adopted asset management policies
- Utilized StreetSaver® analysis
- Additional \$3.4M/yr in pavement management funding





City of Vancouver Pavement Management System -

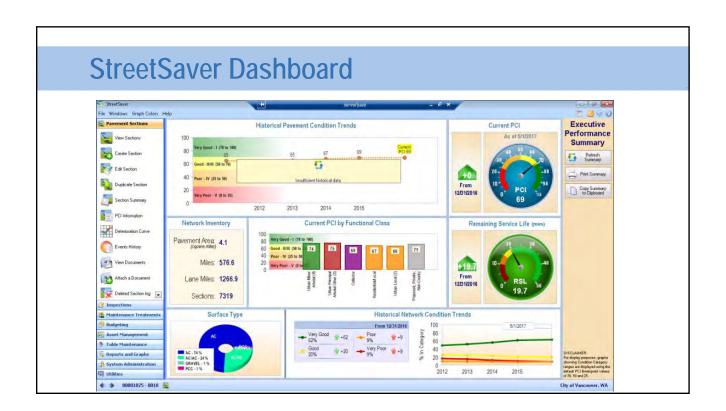


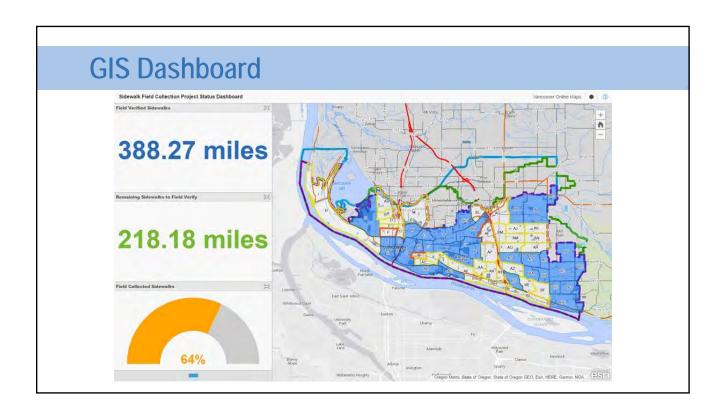
Other Agencies Using StreetSaver®

Agency	Population	Miles
City of Camas (WA)	21,000	130
City of Washougal (WA)	15,000	68
Hood River County (OR)	23,000	180
Crook County (OR)	21,000	472
Trinity County (CA)	13,000	460 (582 total)
Colusa County (CA)	21,500	699



Presentation Title - 21









CITY FINANCIAL POLICIES

In addition to following all laws related to budgeting as outlined by RCW 35, the City has internal Financial Management Policies that are adopted by City Council and reviewed every two years during the budget development process. The Financial Management Policies are a compendium of all City policies that shape the Budget. The policies ensure that the City maintains a healthy financial foundation into the future. The goal of these policies is to promote:

- An extended financial planning horizon to increase awareness of future potential challenges and opportunities.
- Setting aside reserves for contingencies, replacement of capital equipment, and other similar needs.
- Maintaining the effective buying power of fees and charges and modifying cost recovery targets when appropriate to do so.
- Accountability for meeting standards for financial management and efficiency in providing services.
- Management of the city's physical assets to provide sustainable service levels into the future.
- Planning for the capital needs of the community and managing them for future use by citizens.
- Maintaining appropriate levels of debt while ensuring quality bond ratings.
- Investing public funds to provide maximum security with appropriate returns and timely liquidity.
- Communication to residents and customers on how the community goals are being addressed.

The policy statements are grouped by major category in alignment with the policy goals and are presented in the following order:

- Long Range Financial Planning and Resource Utilization
- Reserves
- Capital Planning and Asset Management
- Financial Asset and Liability Management

LONG-RANGE FINANCIAL PLANNING AND RESOURCE UTILIZATION

It is very important to the City to incorporate a long-term perspective and to monitor the performance of the programs competing to receive funding. Management will ensure compliance with the legally adopted budget. Purchases and expenditures will comply with legal requirements and policies and procedures as set forth by the City.

1. A **long-term forecast** of revenues and expenditures will be developed for all operating funds for the six-year period following the end of the current biennial budget.

- 2. The financial **impact** from budget decisions made during the development of the biennial budget will be reviewed in the context of the **six-year** forecast.
- 3. The operating budget will be based on the principle that **current operating expenditures**, including debt service, will be **funded with current revenues**. The budget will not use one-time (non-recurring) sources to fund on-going (recurring) uses, postpone expenditures or use internal borrowing to fund operations. The budget will incorporate the best available estimates of revenues and expenditures.
- 4. **Performance management** will be utilized in the budget prioritization process to ensure alignment with City Goals and Strategic Commitments. Performance data will be used to support budgetary decisions. Measures will be developed to reflect the city's efficiency and effectiveness. Status of key performance measures will be reported to Council.
- 5. **Service levels will be defined and measured** in a manner that is based on results (e.g. units of service delivered, service quality & customer satisfaction) rather than resources allocated to provide the service.
- 6. The City will endeavor to maintain a **diversified general revenue base** to diminish the effects of short-term fluctuations in any given revenue. The goal is to have a combination of revenues that grow in response to a good economy and those that remain stable during times of economic downturn. Examples of the former include sales taxes, utility taxes, and building permit fees. Examples of the latter include property taxes, court fine revenues, and the gambling tax.
- 7. **Revenue estimates** will be developed using reasonably conservative, but realistic assumptions. Deviation of actual revenues from forecast shall not be greater than 2.5 percent. Revenues will be monitored and reported quarterly, including trends and year-end estimates.
- 8. **User fees and utility rates** in all funds will be based on balancing the full cost of providing the service, the competitive market, public benefit, community affordability and other appropriate policy considerations. Beginning on January 1, 2013, fees and rates will be adjusted annually at least by the CPI-W for the Portland metro area using the index for the 12 month period ending in June of the prior year to reflect increases in the costs of providing services. Fees and rates will be reviewed every three to five years and further adjusted if necessary.
- 9. On a regular basis, the city will conduct **cost of service studies** to identify the full cost of providing services funded with fees. The calculation of full cost will include all reasonable and justifiable direct and indirect cost components.
- 10. Specific Council Policies related to **cost recovery targets** by specific program are listed below.

Building Fee Cost Recovery Target: 90%

• Land Use Fee Cost Recovery Target (2010): 60%

Development Review fees in Transportation Target 60%

• Recreation fees cost recovery Target (2011) 72%

(The target includes city administrative costs, including Parks and Rec. Administration, costs associated with the inclusion program and equipment repair and replacement costs as well as facilities and grounds maintenance costs related to buildings operated by the Parks and Recreation Department.)

11. **Full cost recovery** will be targeted in the Enterprise Fund operations:

- City Utility Operations (Water, Sewer, Storm Water, Solid Waste)
- Pearson Air Field (Currently is fully recovering its costs)
- Parking Fund (Current General Fund subsidy is to be eliminated by 2017)
- Tennis Center (General Fund will continue supporting indirect costs).
- 12. **Overhead costs** will be appropriately shared by all operating funds as determined by the City's indirect cost allocation plan. The amount charged by the City for services provided under an interlocal or similar agreement will include a factor to cover the City's overhead costs.
- 13. **Grants** that support city objectives and are consistent with high priority needs will be aggressively sought. Grants requiring a local match or a continuing city obligation to fund programs will be carefully considered prior to applying for the grant to ensure that ongoing resources will be available to meet the obligation. The city shall attempt to recover all allowable costs, direct and indirect, associated with the administration and implementation of the program funded through grants.
- 14. **Expenditures will be controlled** by an annual appropriated budget at the department/fund level. The City Council shall establish appropriations through the budget process. The City Council does not require a re-appropriation of carry-forward funds in the second year of the biennium. New appropriations require Council approval.
- 15. If a deficit is projected during the course of a fiscal year, the city will take steps to reduce expenditures, increase revenues or, if a deficit is caused by an emergency, consider using one of the existing General Fund reserves. The City Manager may institute a variety of measures to ensure spending remains below reduced revenues.
- 16. The City's **classification and compensation plan** will be maintained in a manner consistent with the labor market by reviewing classification specifications and benchmarks, so that change in the classification structure may coincide with the budget cycle. The City will compare employee compensation using a total compensation approach that includes the value of benefits. The City will target compensating employees at the market mean level, within the City's ability to pay.
- 17. Full Time Positions are controlled by FTE at a city-wide level. Vacant positions may be borrowed between funds for a time-limited term. Positions may be overfilled with permission by the City Manager or designee for a limited time period in situations where maintaining minimum staffing, reducing personnel related costs, transferring knowledge and providing a seamless transition between new, terminating and retiring employees necessitates the overfill. Overfills will be managed within the department/fund budget appropriations.
- 18. Actual expenditures will be closely and frequently monitored. The comparison of budget to actual expenditures shall be reported to Council on a quarterly basis.

RESERVES

Reserves are an important indicator of the city's financial position and its ability to withstand adverse events. Maintaining reserves is a prudent management practice.

- 18. An Emergency General Fund Reserve will be maintained equal to 7% of actual external revenues in the preceding fiscal year in the General, Street and Fire Funds. The Emergency Reserve is for unexpected, large-scale events where damage in excess of \$1 million is incurred, and immediate, remedial action must be taken to protect the health and safety of residents (e.g. major flood, earthquake, etc.). In the event these "Emergency Reserve" funds are utilized, the City shall restore the reserve to the full 7% level within a reasonable amount of time as necessitated by the scale of emergency. A clear plan will be developed to refill the reserve and the first significant deposit will occur the following fiscal year after the event.
- 19. The City will maintain additional "**Working capital**" reserves, sufficient to fund on average 60-90 days of operations in each operating City fund. This reserve will address city's cash flow requirements and allow the City to operate without funding its operations through short-term borrowing.
- 20. The City will maintain a "Revenue Stabilization" reserve with a goal of reaching 2.5% of the current year's budget in the General fund. This reserve may be used to provide funding to temporarily offset unanticipated fluctuations in on-going revenues or unanticipated events, such as unexpected external mandates, reductions in state shared revenues, etc. The reserve funds will provide time for the City to restructure its operations in a deliberate manner to ensure continuance of critical city activities. If the reserve is spent down, it shall be restored within the following two years. This reserve could be utilized if there is an identified 3-6 month trend of reduced revenues.
- 21. Additional "Designated Liability Funding" reserve will be created when the City accepts funding leading to future liabilities. The reserve will be equal to the stated liability in the future. If a federal or state grant requires local resources to fund the initiative after the grant expiration, the cost of funding the initiative is considered to be a liability that will be funded from the "Designated Liability Funding" reserve.
- 22. The City' will set aside a reserve to fund no less than fifty percent of the liability associated with accrued compensated absences in all City operating funds.

Council may take action to designate reserves for a specific purpose. An example is Council's designation of reserves representing proceeds from the sale of the Columbia Arts Center.

- 23. Funds in excess of the reserves will be considered **Unassigned General Fund Balance** and could be utilized to fund high priority Council designated one-time in nature purposes, including but not limited to funding of accumulated currently unfunded deferred liabilities.
- 24. **Equipment replacement reserves** will be maintained in the equipment services Capital fund sufficient to replace covered vehicles and heavy equipment at the end of their useful lives with like equipment. Equipment rates will include a factor to accrue the estimated replacement cost over the life of the equipment. Reserve balances and rates will be reviewed bi-annually for sufficiency.
- 25. **Technology equipment replacement reserves** will be maintained in the technology equipment replacement fund sufficient to repair covered equipment and major software systems for replacement at the end of its useful life.
- 26. **A liability self-insurance reserve** will be maintained to cover potential liability for tort claims. The unrestricted fund balance subtracts from available cash all the known claims against the City and those claims that might have occurred, but not yet reported. The fund balance will be based on the most recent

actuarial study of the self-insurance fund. The actuarial study of the fund is to be performed once every two years.

- 27. **A benefits self-insurance reserve** will be maintained to cover two months of costs associated with benefit insurance premiums. Additional reserve might be set, as needed, to smooth out annual Health Insurance Cost increases over time. Self-Insured Health Insurance reserves will be maintained at a level consistent with State of Washington requirements for self-insured benefit plans.
- 28. **Fire Pension** benefit obligations will be addressed by annual contributions to the fire pension fund in accordance with recommendations in the most recent actuarial study, as required by R.C.W. 41.16.050. (Note: This is a "closed" plan with no new participants. Current number of members who are retired and receiving pension payments from the city is 64 with no additional members on active duty. City obligations arise only for those firefighters hired prior to March 1, 1970. The State of Washington has assumed all obligations for those hired on or after that date.) In addition to the pension payments, the city is responsible for life-time medical benefits for a total of 66 retired and none on active duty. City contribution includes the projected annual pension payments for currently active and retired members eligible for retirement benefits and project annual medical benefit payments for those active and retired members eligible for medical and long-term coverage.
- 29. **Police Pension** benefit obligation will be funded on a pay-as-you-go basis by making contributions to the police pension fund in an amount sufficient to meet police pension benefit obligations. (Note: this is a "closed" plan with no new participants). Current number of members who are retired and receiving pension payments from the city is 28 with no additional members on active duty. City obligations arise only for those police officers hired prior to March 1, 1970. The State of Washington has assumed all obligations for those hired on or after that date.) In addition to the pension payments, the city is responsible for life-time medical benefits for a total of 47 retired and none on active duty.
- 30. **Facilities Asset Management and Replacement Reserve** shall be established in a separate fund to provide for major maintenance and building replacement of the major city facilities at the end of their useful life. **This policy currently applies to facilities of the First and Second Tiers as defined using contemporary asset management practices.**

CAPITAL PLANNING AND ASSET MANAGEMENT

Asset Management is a systematic process whereby the assets of the city (i.e. water system, sewer system, transportation system, property, buildings, etc.) are operated, maintained, replaced and upgraded cost-effectively. It includes operations and maintenance costs, as well as capital investments which can take the form of new construction, rehabilitation, or replacement.

31. Asset management best practice involves managing the performance, risk and expenditures on infrastructure assets in an optimal and sustainable manner throughout their lifecycle covering planning, design, construction, operation, maintenance, and disposal. The City shall integrate the principles and best practices of Asset Management such as those embodied in the International Infrastructure Management Manual in the management of its assets.

- 32. **Asset Inventory** will be maintained with maintenance, repair and deferred maintenance costs identified and updated on an annual basis.
- 33. **Maintenance** of city assets shall be addressed on a current need, rather than deferred into the future.
- In 2015, Council adopted a **New Street Funding Program** in response to formal recommendations from a citizen-led effort. Revenues from this program were established to supplement and not supplant street funding resources identified in the 2015-2016 Adopted Biennial Budget. A formal public process will be established requiring review of any future proposals to redirect revenues in the new Street Funding Program for purposes other than streets funding.
- The City will maintain funding of the **Pavement Management Program** at no less than that in the 2015-2016 Biennial Adopted Budget level increased by an appropriate inflationary factor, if necessary. To ensure accountability and transparency, the increase in program level funded by the new Street funding program revenue sources will be fully costed, budgeted for and spent from special funds created to track direct operating, capital and administrative expenses. Annual reporting of the outcomes will be published for the residents and City Council prior to the end of the first quarter of each year for the prior year beginning for fiscal year 2016.
- The City will redirect to the new Street funding program expiring debt service budget from pre-2015 debt issues for Transportation projects, beginning with debt expiring in 2016.
- 37. **A six-year City-Wide Capital Improvement Program** shall be developed annually and shall provide a prioritized list of reasonably funded projects and those in process of securing funding. Capital Improvement Plans for utility assets shall be updated no less frequently than every two years. The comprehensive plan will identify longer-term capital needs by program area.
- Funding for capital projects, including major facilities maintenance projects, will be allocated in a manner that balances community needs with City priorities, the potential for attracting matching funds, and the ability to reduce or limit expenses in future years.
- 39. The City's objective is to incorporate a "Pay-As-You-Go" approach (using available cash and current resources) in the Capital Improvement program. Proceeds from the sale of City capital assets no longer utilized in operations will be deposited consistent with the initial ownership of the asset and invested in the highest priority City capital projects.
- 40. The Capital Budget will be adopted at the same time the City Operating Budget is adopted. The Capital budget will only include fully funded projects. The Capital Budget will only contain projects identified in the Capital Improvement Program.
- 41. **A capital repair appropriation** will be maintained for unanticipated major repairs of general operating facilities and for emergency replacement of general fund equipment. Additions to the capital repair contingency reserve will be made based on Council directions.
- 42. **Impacts on net annual operating and maintenance costs** will be identified as part of the funding considerations for new capital projects such as buildings, parks and street enhancements. This includes identifying potential reductions in maintenance costs if improvements are funded. The necessary funds to operate the capital facility will be identified at the time the capital budget is adopted.

- 43. In order to provide long-term sustainable utility services, the city will structure utility rates so that system reinvestment including major repair, rehabilitation and replacement of utility assets can be fully funded on an ongoing basis in accordance with the city's "pay as you go" policy. This will be achieved through a plan of smaller incremental rate increases to maintain affordability. As identified by the utility capital improvement plan, rates will also include a investment component for capacity improvements and system expansion.
 - 44. **A System Development Reserve** will be maintained to fund growth related capital costs. All systems development charge revenue will be contributed to the fund.

FINANCIAL ASSET AND LIABILITY MANAGEMENT

INVESTMENT POLICIES

- 43. The City will invest public funds in a manner which will provide maximum security of principal with the highest investment return, while meeting the daily cash flow demands of the City. Detailed policies are found in Exhibit A Investment Policies.
- 44. The City will conform to all state and local statutes governing the investment of public funds.
- 45. All investment security transactions will be conducted on a delivery-versus-payment (DVP) basis.
- 46. The City will only deposit money with financial institutions qualified by the Washington Public Deposit Protection Commission and in accordance with the provisions of RCW 39.58.
- 47. The City will issue Request for Proposals (RFPs) for banking services, safekeeping, trust services, and other contracts related to financial services.

DEBT MANAGEMENT POLICIES

- 48. The City will attempt to pay for capital projects on a "pay-as-you-go" basis. However, if debt is required, the City will follow debt policies as detailed in Exhibit B Debt Management Policy.
- 49. The City will issue debt in conformance with the requirements of its statutory general obligation debt limits. The non-voted debt limit is a sub-part of that limit.
- 50. The City will reserve 10% of its non-voted debt capacity as a contingency against unforeseen emergencies requiring the issuance of debt.
- 51. The City shall not exceed 85% of the non-voted legal debt limit, excluding the 10% reserved for emergency purposes.
- 52. The City's annual debt service payments will not exceed 10% of the total General Fund annual expenditure appropriation.
- 53. Any Capital projects financed through the issuance of bonds shall be financed for a period not to exceed the expected useful life of the project.
- 54. The City will adhere to all post-debt-issuance compliance policies as described in Exhibit B Debt Management Policy.

A Local Perspective on Pavement Condition Data Collection & Use

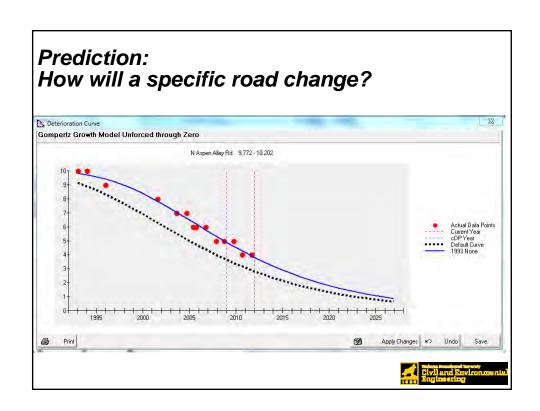
Tim Colling PhD., P.E. Director Center For Technology & Training tkcollin @mtu.edu (906)-487-2102

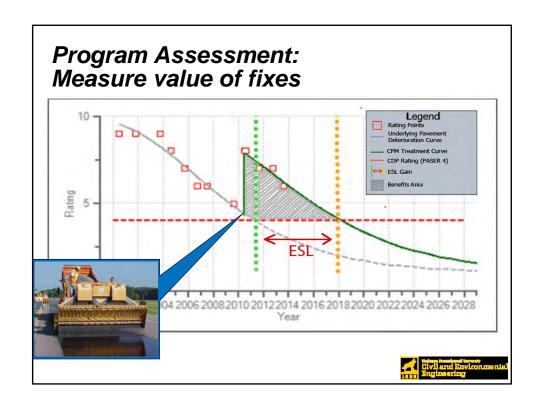








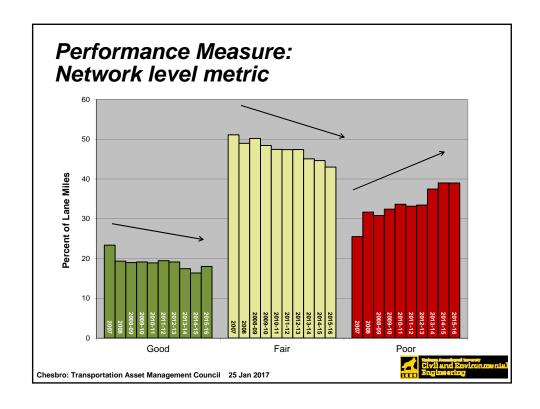


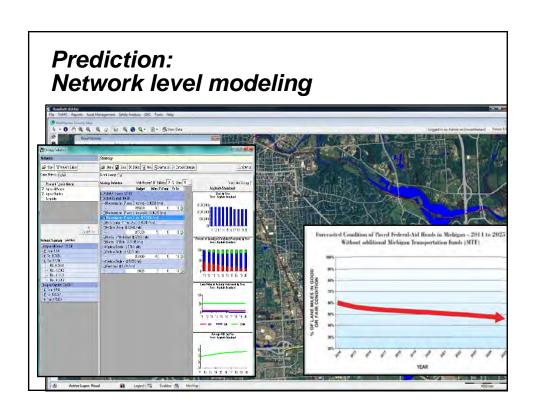


Setting Policy: Cost effectiveness of treatments

Fix Type	Cost \$ per Lane Mile	Added Life	Cost per Year of Added Life
Crack Seal	\$4,000	1 yr.	\$4,000
Seal Coat	\$20,000	3-7 yr.	\$5,000
Overley	\$100,000	5 10 vr	·
Overlay	\$100,000	5-10 yr.	\$12,500
Crush & Shape	\$150,000	12-15 yr.	\$10,700
Reconstruction	\$400,000	15 yr.	\$27,500









Project: Moving pieces

Network: Winning game





Research

- □ Refine timing of fixes
- ☐ Refine materials used in pavements
- □ Refine construction technique
- □ Refine design methods
- Measure impact of treatments
- □ Relating distress to use

Must have control of other variables!







Cost of Data Collection

Data collection is the largest single cost of asset management

- □ Visual Inspection = \$12 to \$25 / mile
- □ Index Systems = \$80 to \$250 / mile

Consider A county with 800 miles of paved road

Visual = \$12,000

Index = \$132,000

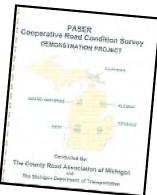
Michigan's Asset Management Legislation

PA 308 of 1998 – Act 51 Funding Study Committee

- □ How do we manage Michigan's roads as a whole?
- □ What funding volume is needed?
- □ Consistent data?
- Make recommendations

CRA and MDOT Pilot Program

- □ Test the committee's recommendations
- □ Establish a data collection approach
- Prove it could work as a distributed system
- Make use of existing systems





Michigan's Asset Management Legislation Background Michigan Act 499 of 2002 Defined asset management Established Transportation Asset Management Council "Begin on the federal aid . . . and continue on to the local system" TAMC must report to Transportation Comm. Funded data collection and TAMC activity



What Do We Do in Michigan?

Public Road Network about 248,000 LMi, or 122,000 route mile

88,000 LMi Paved Fed Aid 80,000 LMi Paved Non-Fed Aid 80,000 Lmi Unpaved Non-Fed Aid



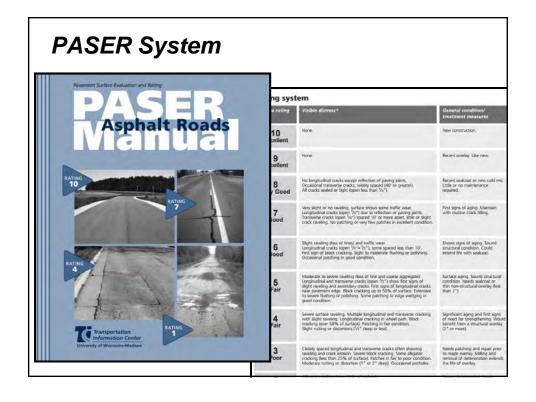
Yearly Rate

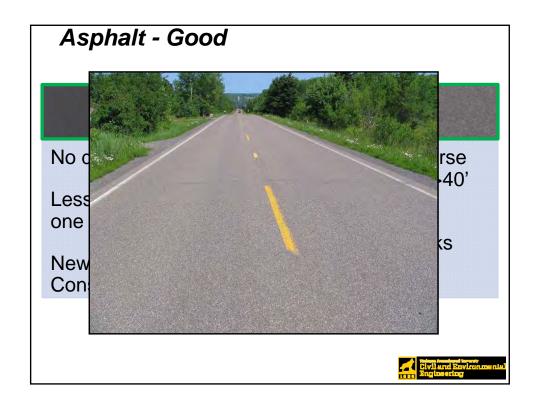
>50% paved Fed Aid = 55,000 LMi to 62,000 LMi/ year

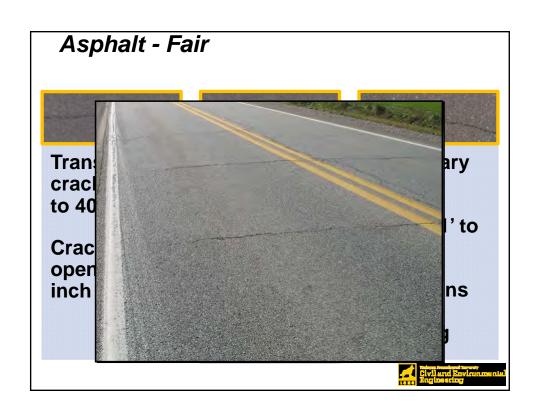
Paved Non-Fed Aid = 10,000 LMi to 20,000 LMi reported

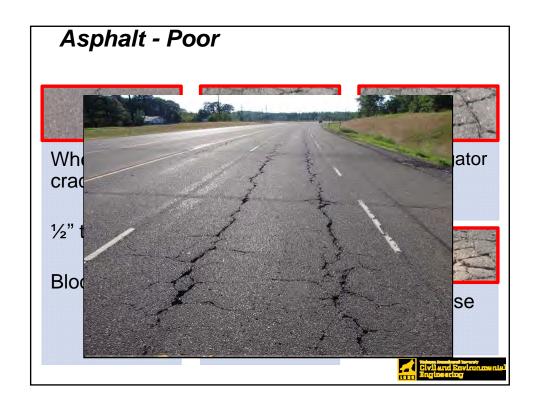
Unpaved rating next year – Michigan's Inventory Based Rating

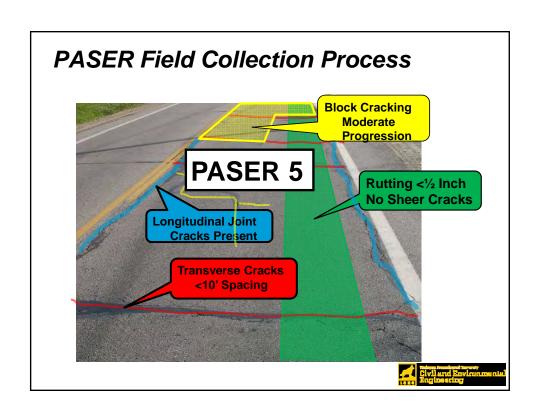




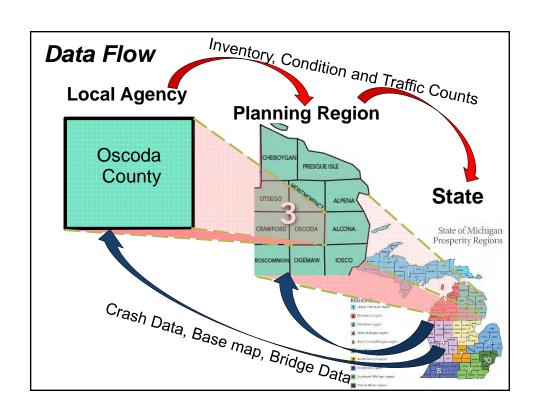


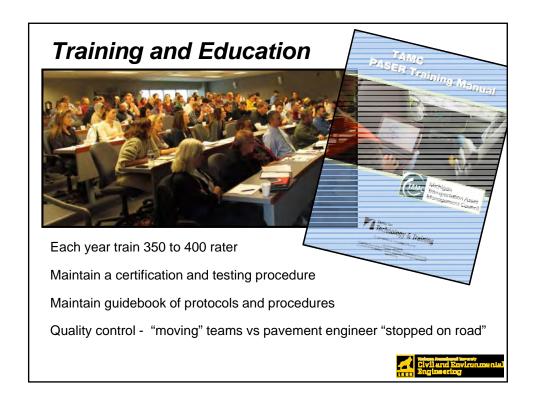


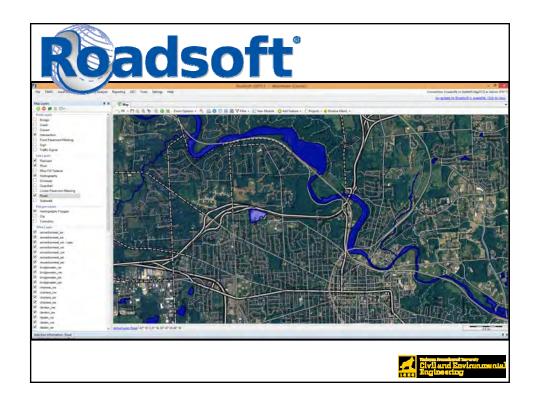


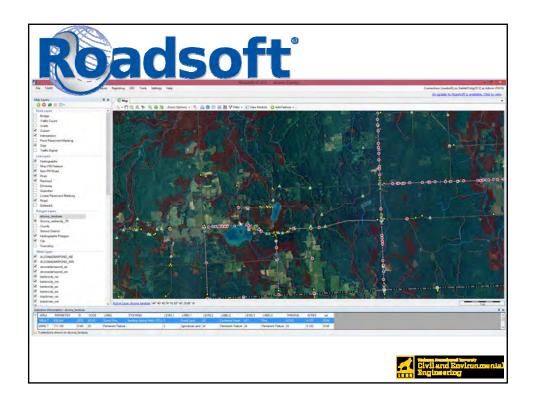


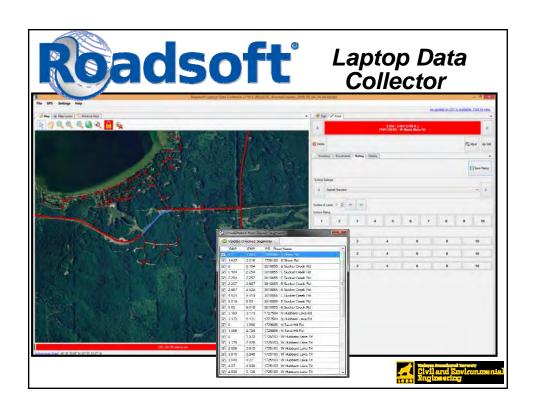


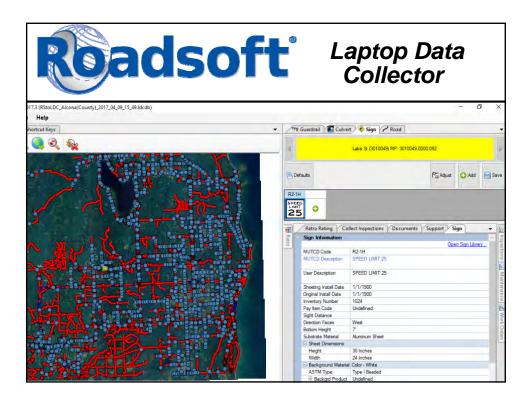


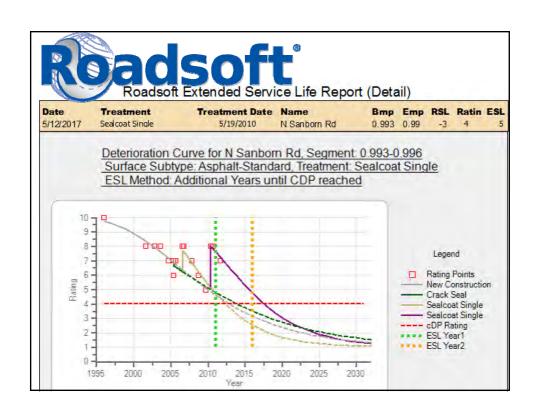


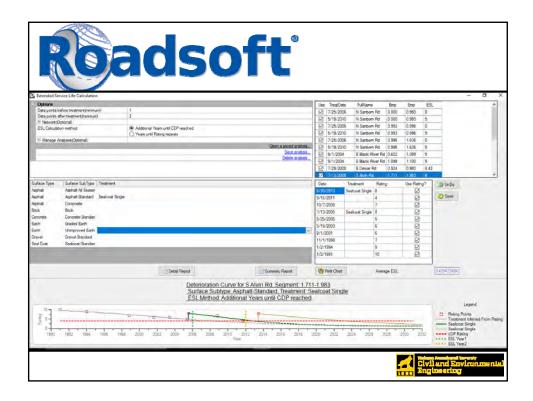










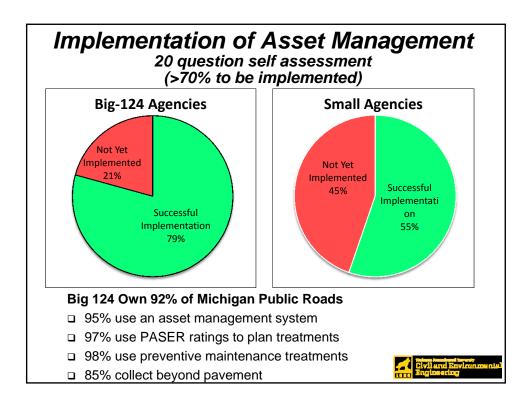


Outcomes Of Michigan's Program

Decentralized, wide area collection

- Collect data once, use three times
- Local agencies have ownership in data most collect more than minimum
- State and regions get high quality data at low price
- Local agencies have tools to extract information from data
 - □ Current condition mapping
 - □ Reporting and analysis
 - Deterioration models
 - □ Treatment benefit study tool
 - Network level model determine condition for a given budget
- □ Asset management adopted as business practice







Points to Walk Away With

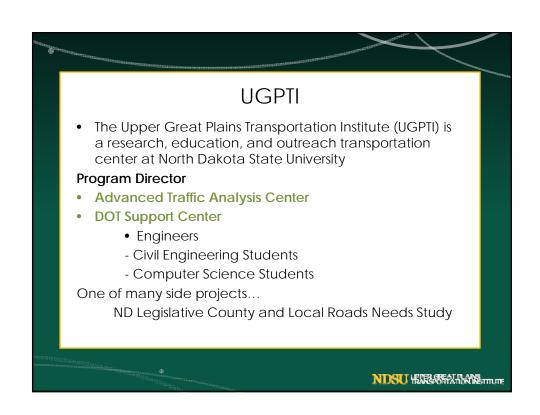
- Data collection will likely be the largest ongoing cost of an asset management process so make sure you can sustain meaningful collection
- Understand why you are collecting data and how you are going to turn it into information before you begin
- Develop a data collection guidebook / notebook as you make decisions from year to year and review it before collection
- Providing tools and training to make sense of the data leads to local agency implementation

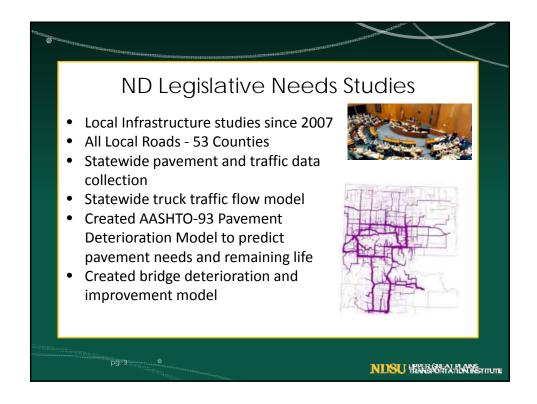


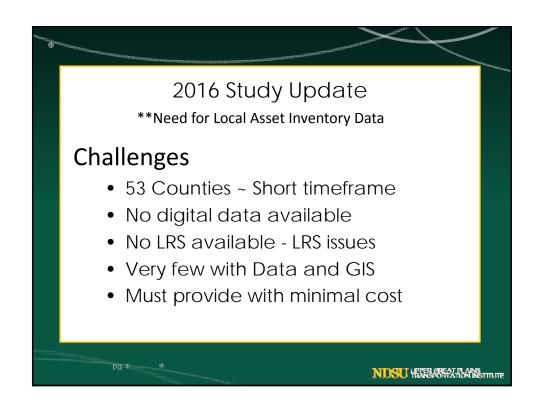


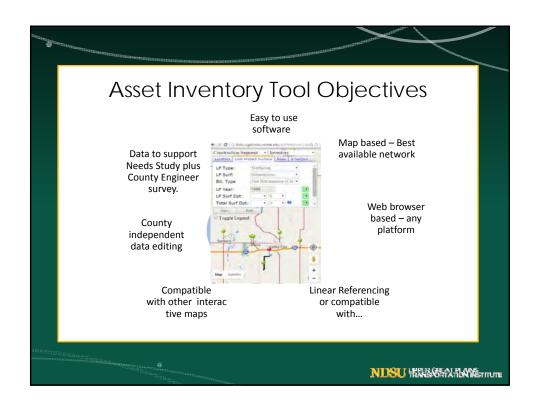




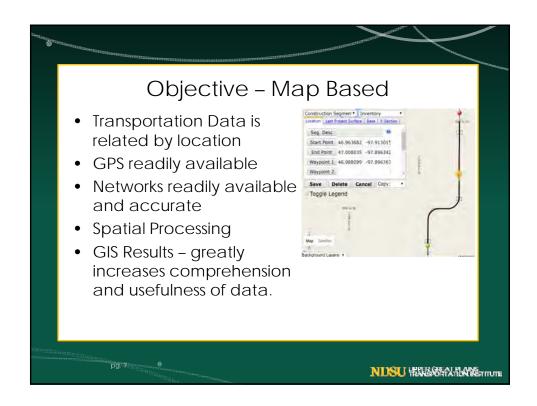


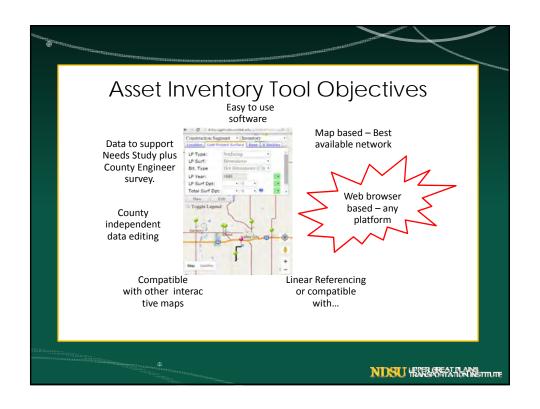




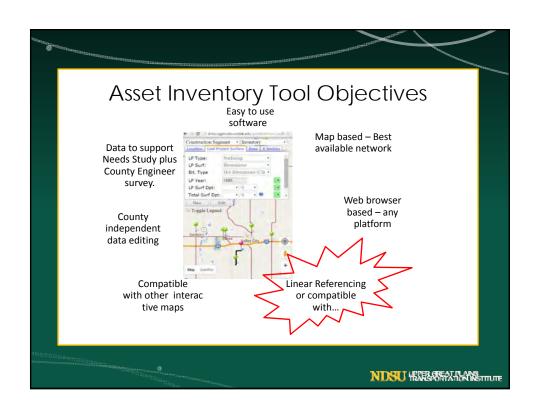


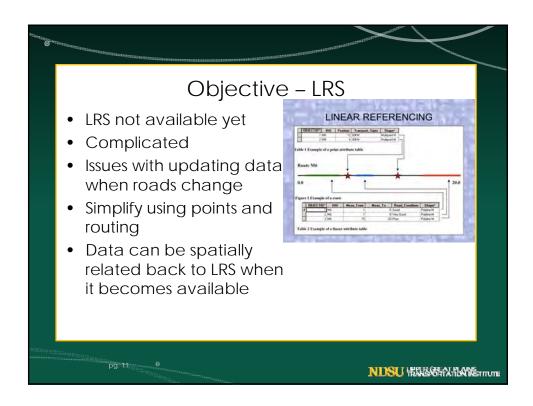




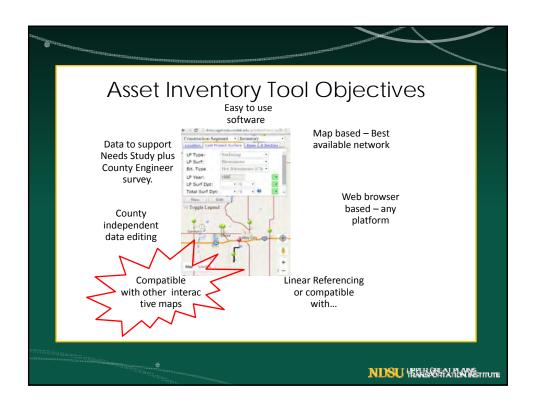


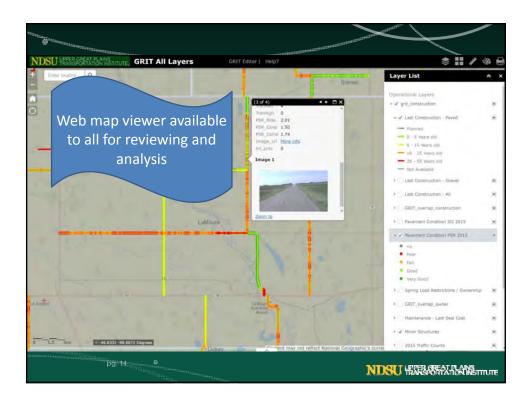


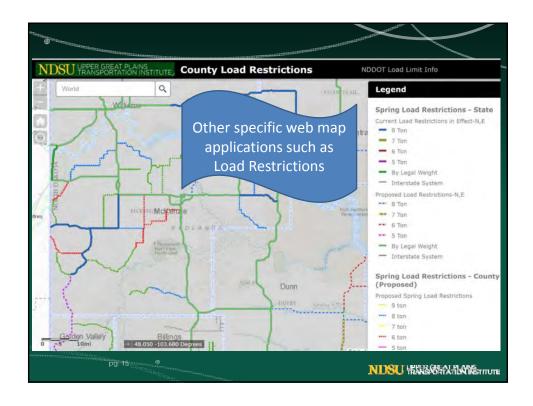


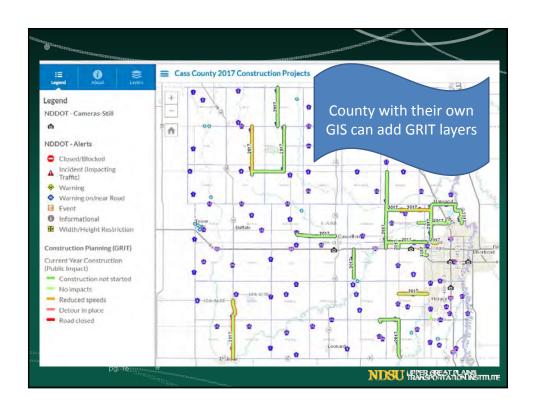


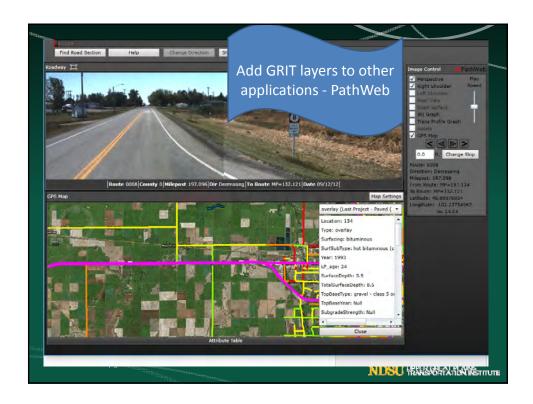


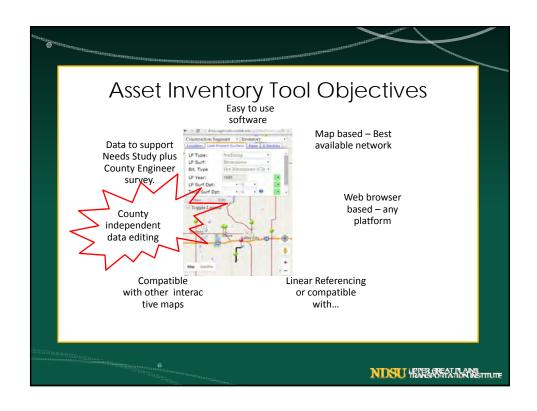


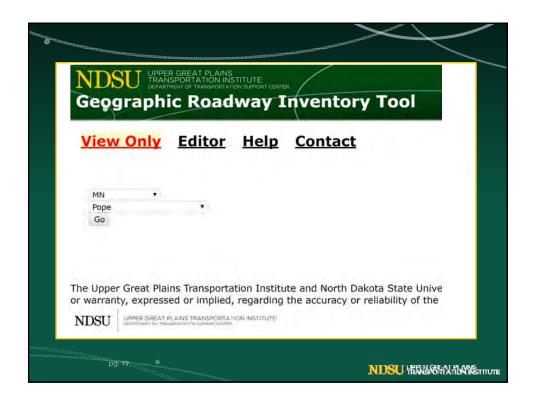




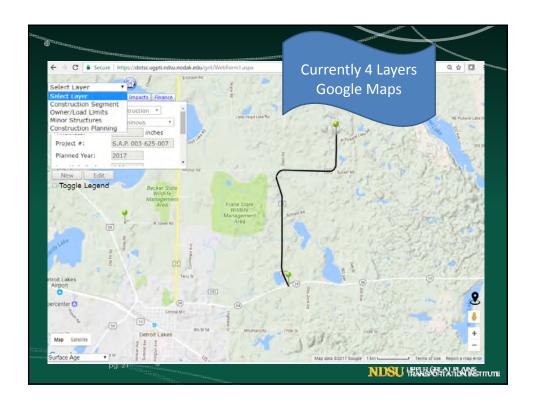


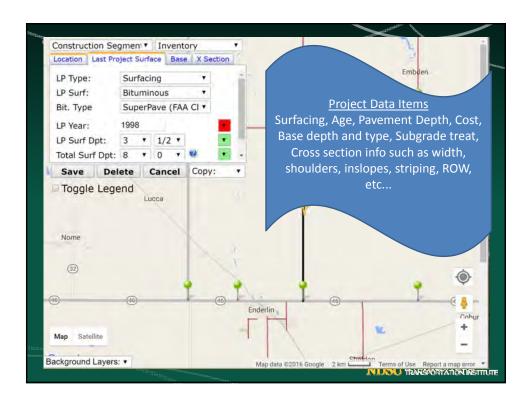


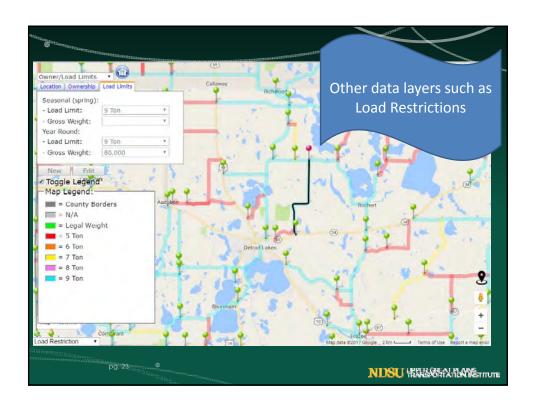




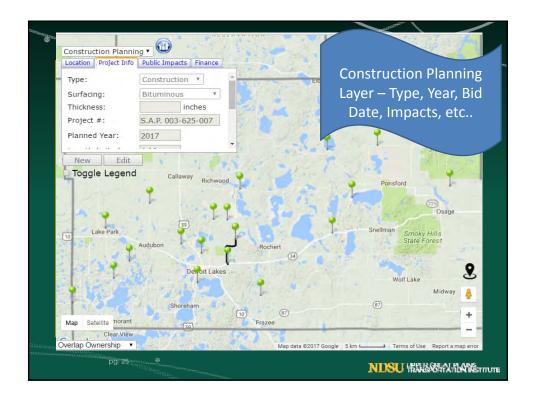


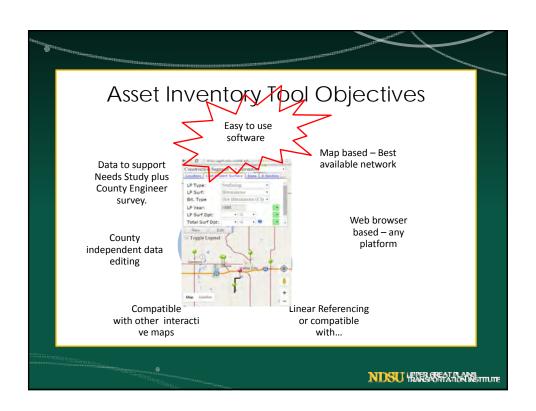


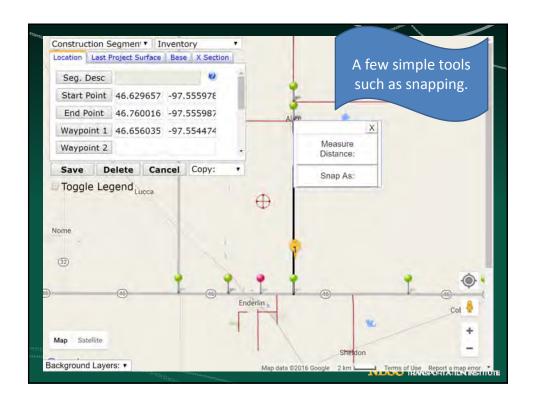




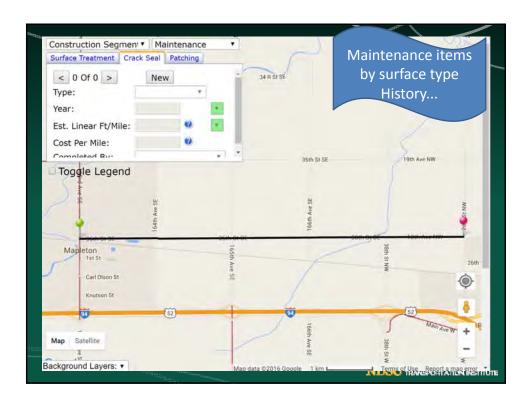






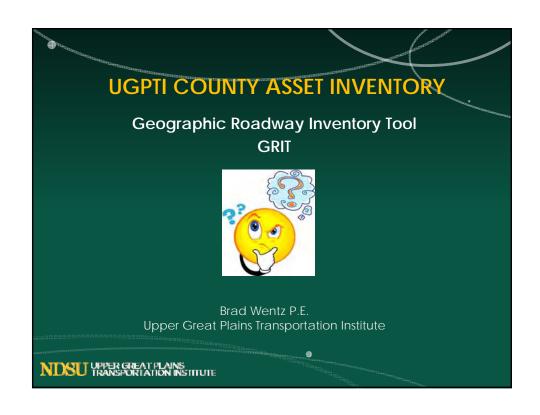












NW Pavement Management Association



Ryan Miles City of Vancouver NWPMA Chair



Minnesota Asset Management Peer Exchange May 16-17, 2017

Presentation Overview

- History of the NWPMA
- How does the NWPMA work?
- How does the NWPMA help local agencies?



What is the NWPMA

... a non-profit association of professional and technical agencies and persons, both public and private with interests and responsibilities in the systematic preservation and restoration of public road and street pavements.



NWPMA - 3

History of the NWPMA

 During the late 70's and Early 80's WSDOT developed a Pavement Management System for State Highways

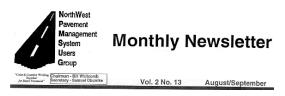




History of the NWPMA

- Counties begin using Road Rater equipment
- Cities form NW Pavement Users group
- First Road Rater conference in 1989





NWPMA - 5

History of the NWPMA

- Both groups include similar participation
- "Road Raters" look at formalizing their organization
- Membership expanded to include representatives to look at developing one Pavement Management group in Washington.
- Developing a combined organization is voted on by membership of the Road Rater group and the Northwest Pavement Management User Group.

History of the NWPMA

The NWPMA is formed



NWPMA - 7

NWPMA Purpose

- Promote effective partnerships
- Improve members ability to effectively manage their pavements
- Promote pavement management technology transfer, research, and education
- Provide common forum for exchange of ideas



How the NWPMA Works

- **NWPMA** Charter
- **NWPMA Bylaws**
- Articles of Incorporation

NORTHWEST PAVEMENT MANAGEMENT ASSOCIATION CHARTER

NWPMA - 9



How the NWPMA Works: Organization

- All volunteer organization
- Member agencies from Washington, Oregon, and Idaho
- Elected e-board





How the NWPMA Works: Executive Board

- Elected annually
- Officers: chair, vice-chair, treasurer, and secretary
- E-board: 1 to 3 members each from Washington, Oregon, and Idaho



NWPMA - 11

How the NWPMA Works: Activities

- Monthly conference call
- Sub-committees
- Conference planning
- Meetings as needed
- Fall conference



How the NWPMA Works: Fall Conference

- Held in late October
- Three and a half days
 - Preconference workshops
 - Joint and breakout sessions
 - Vendor presentations





NWPMA - 13

How the NWPMA Works: Fall Conference

- Speakers local and national including local agencies, contractors, suppliers, and consultants
- Pavement and asset management topics
- Vendor exhibits





Benefits of the NWPMA

- Develop peer relationships
 - Engineers
 - Maintenance staff
 - Contractors
 - Suppliers
- Maintaining partnerships







- Generate enthusiasm for pavement management
- Provide opportunities for furthering pavement management practices





Benefits of the NWPMA

- Keep current with new technologies within the industry
- Lessons learned from partner agencies





NWPMA - 17

Benefits of the NWPMA

- Opportunities for collaboration
- Opportunities to get involved in statewide paving initiatives
- Training





More Info on the NWPMA

NWPMA website: www.nwpma-online.org





NWPMA - 19

Questions and Discussion



Ryan Miles, City of Vancouver NWPMA Chair Ryan.miles@cityofvancouver.us 360-487-7708

Iowa Pavement Management Program: Overview

Asset Management Peer Exchange
ST Cloud, MN
Wednesday, May 17, 2017



Inya Nlenanya
Program Coordinator

IPMP Mission

- Support of the MANAGEMENT, PLANNING, and PROGRAMMING needs of transportation agencies
- Provide pavement management information, tools, and training supporting both PROJECT level and NETWORK level activities



IPMP

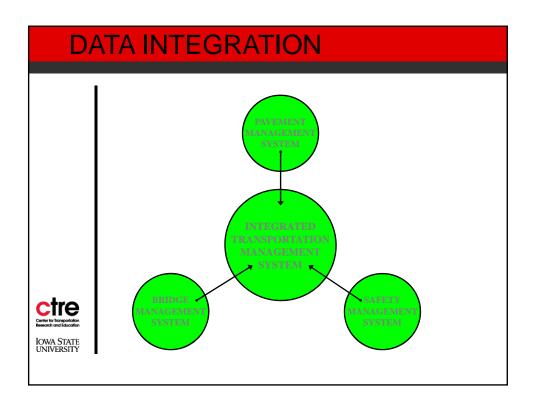
- ISTEA Mandate (1991)
- Started in 1995
- 38,000 KM
- State, Counties and Cities
- Three Phase approach

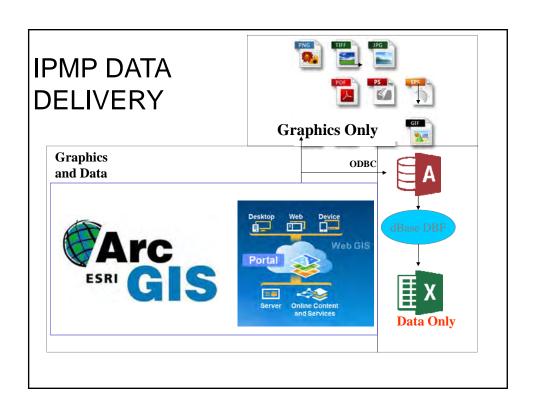


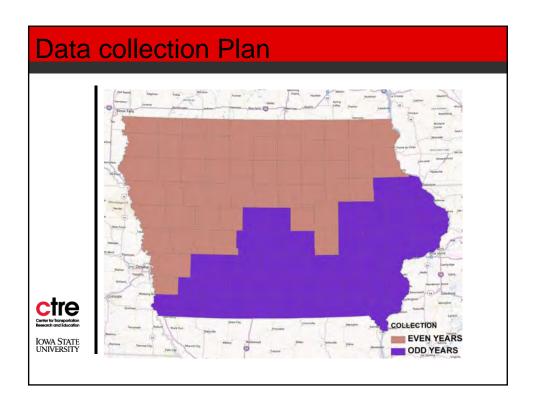
MAJOR TASKS

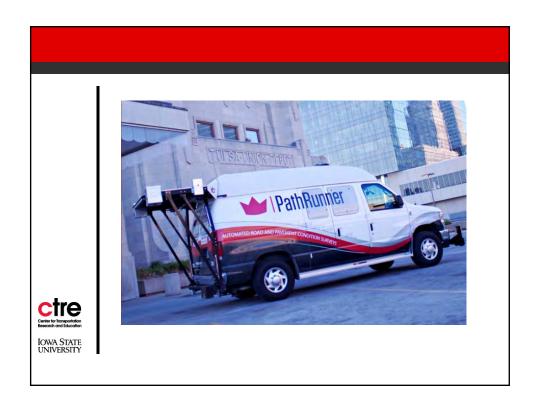
- Database Design
- Pavement Management Data
- Pavement Management Software
- Information Delivery
- Training
- Implementation

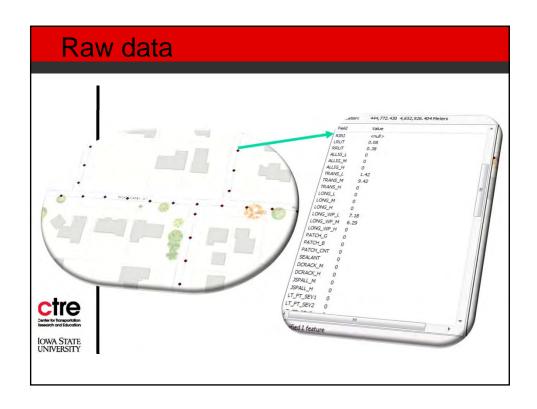


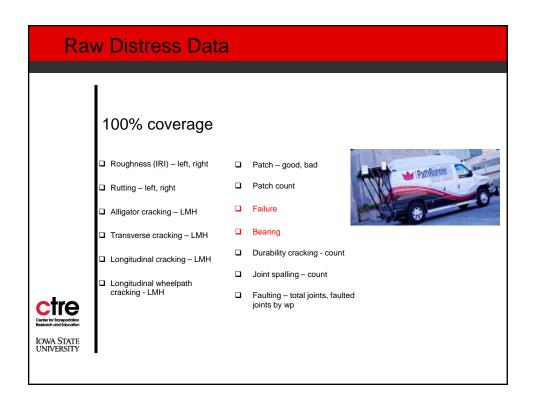


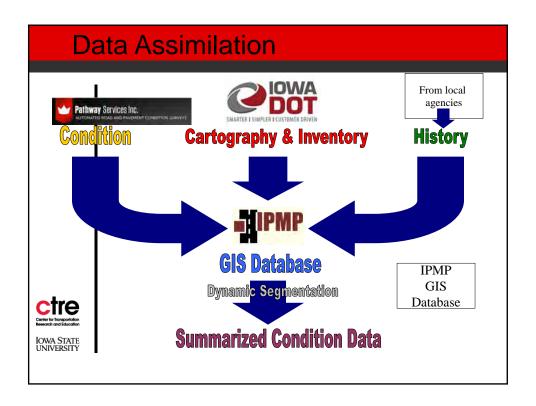


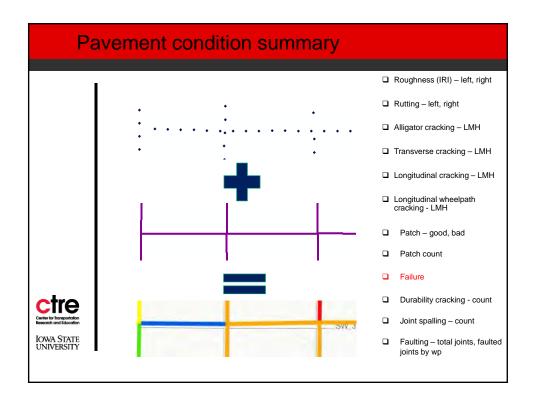


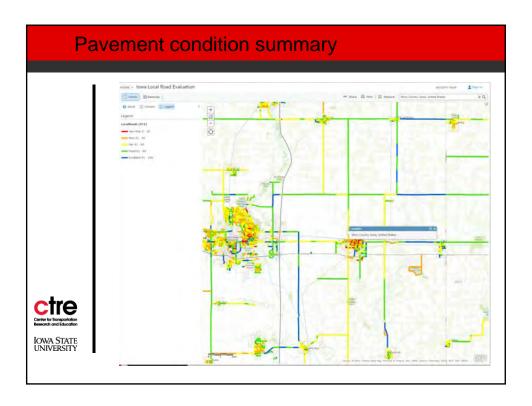


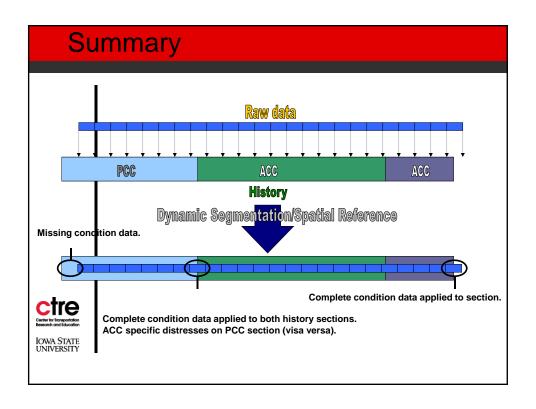












Pavement Condition Index (PCI)

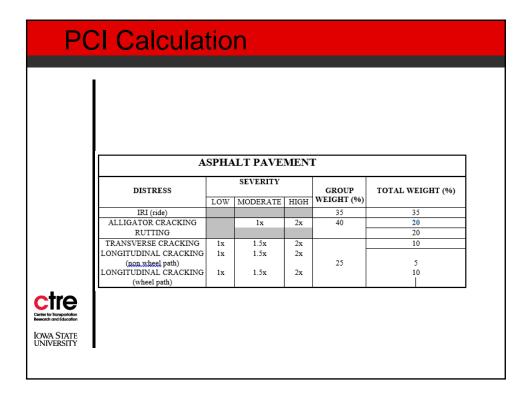
- · A combined condition index:
 - Road roughness (bumpiness)
 - Rutting
 - Cracking (transverse, longitudinal, alligator)
 - Patching
 - Faulting
- Calculated for Asphalt, Composite, and Concrete roads separately
- Scale of 0-100 with 100 being a new street

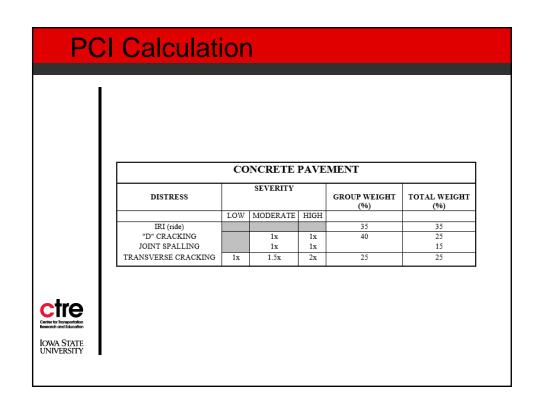


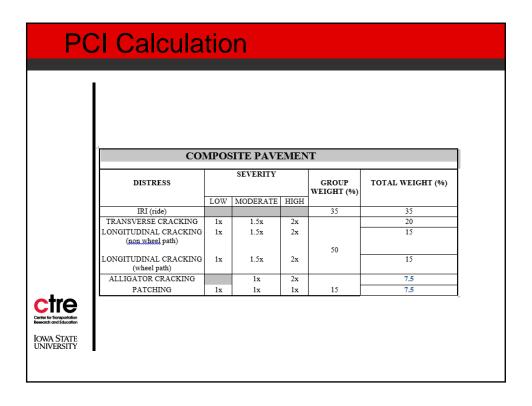
Pavement Condition Index (PCI)

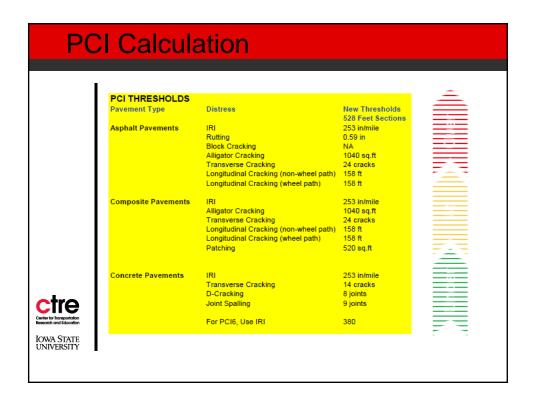
- PCI Scale:
 - Very Poor = PCI 0-20
 - Poor = PCI 20-40
 - Fair = PCI 40-60
 - Good = PCI 60-80
 - Excellent = PCI 80-100

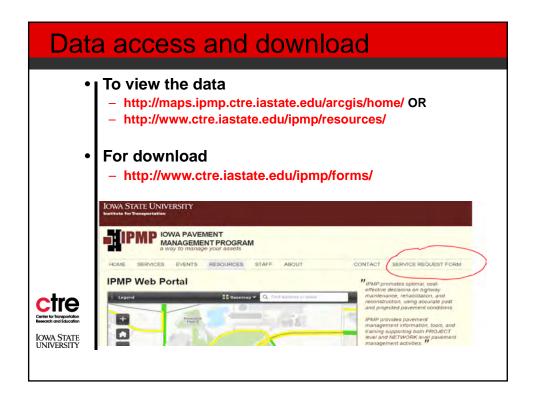




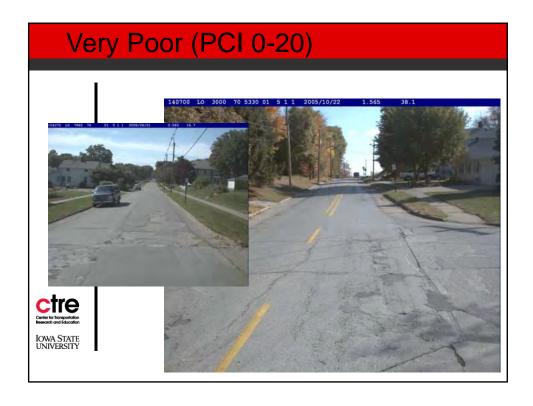




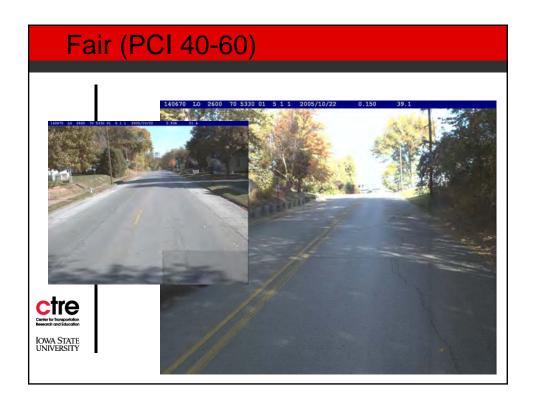




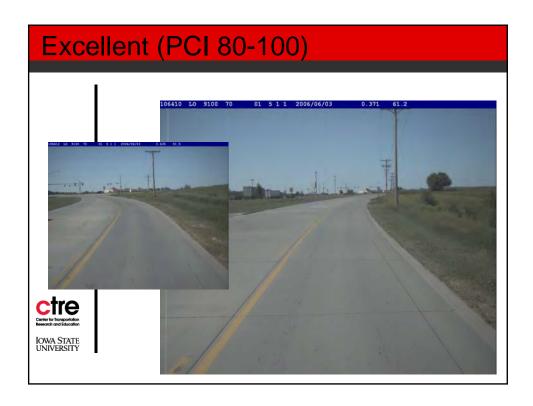


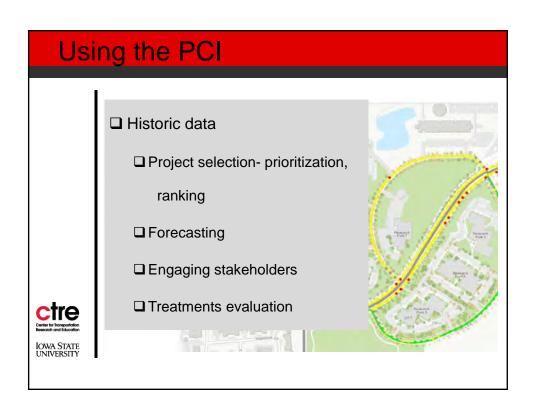


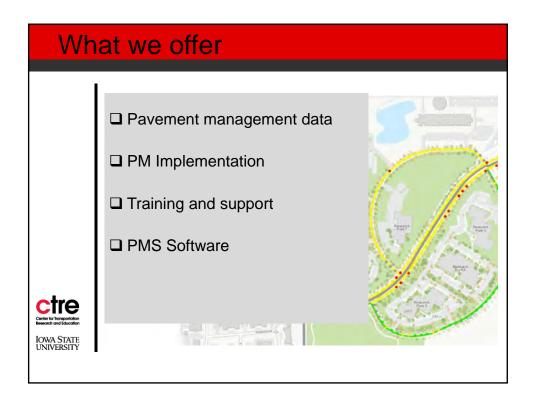


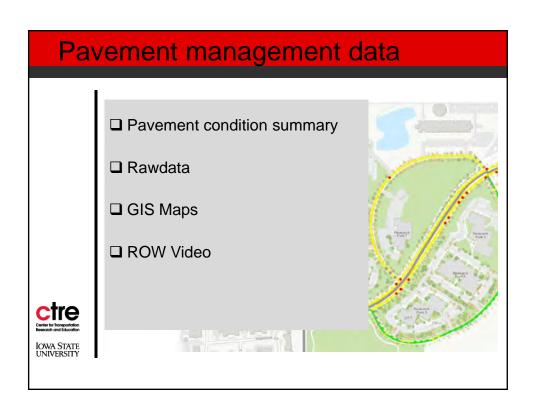


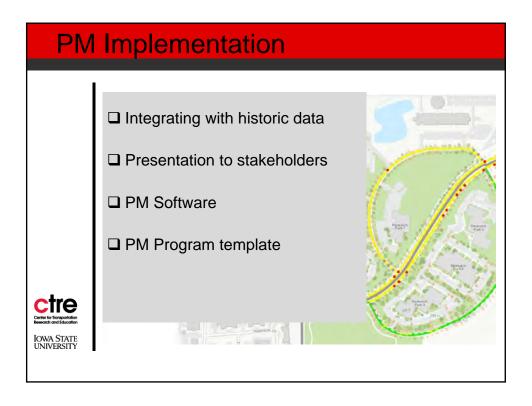


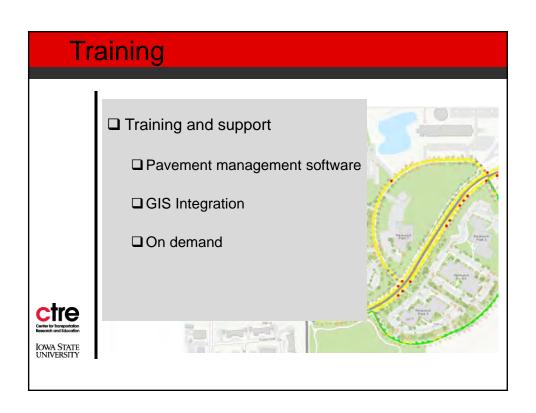


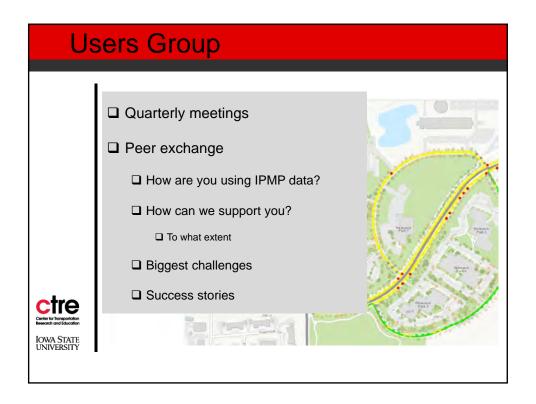


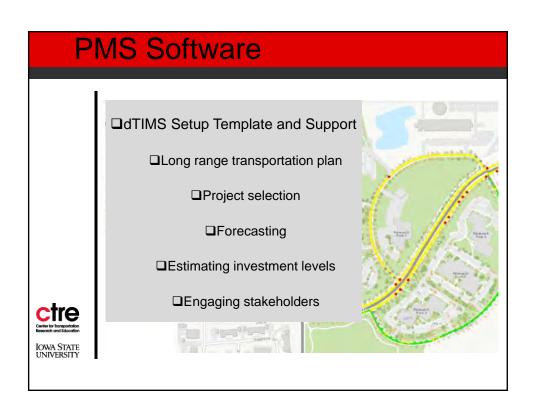












PMS Software

- dTIMS:
 - Multi-year Prioritization
 - Incremental Benefit Cost Analysis
 - Deterministic Performance Forecasting
 - Project Selection
 - Budget Analysis



dTIMS

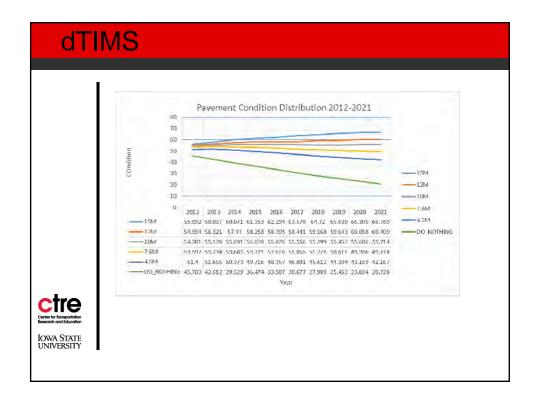
- Implementation:
 - Data
 - Performance curves
 - Treatment strategies
 - Trigger limits
 - Improvements
 - Evaluation

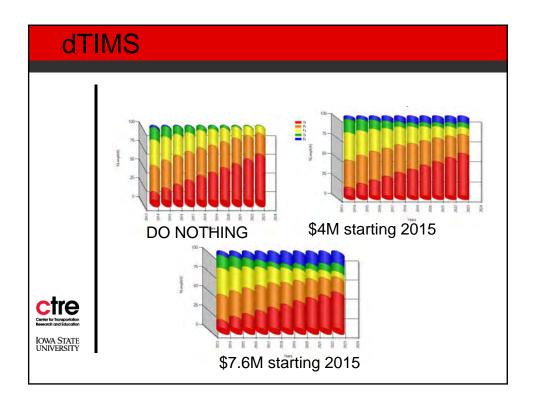


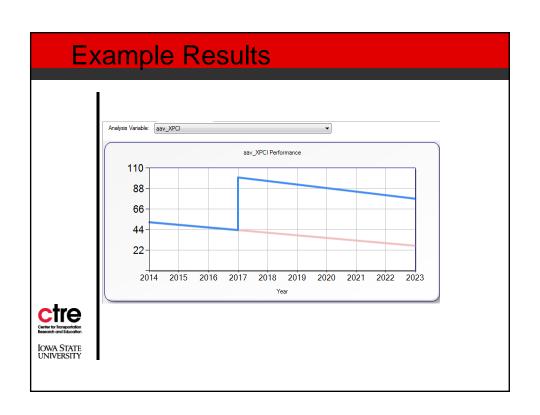
dTIMS

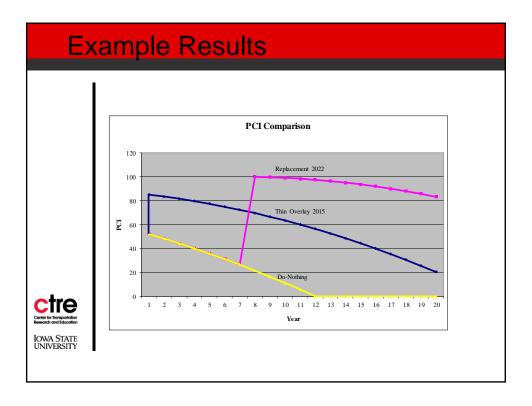
- Results:
 - Recommended Projects (by year)
 - Recommended Treatments (project & year)
 - Overall Analysis Summaries:
 - Condition
 - Backlog
 - Treatment cost
 - Treatment length

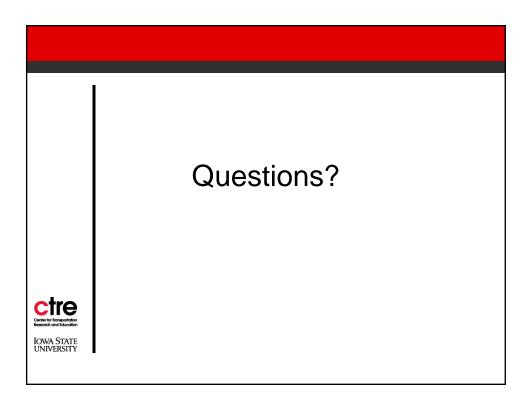












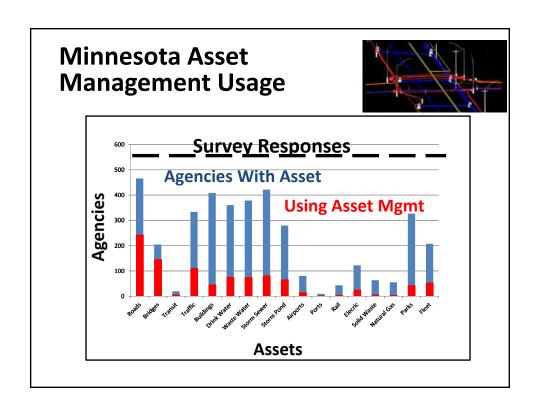


MN2050 'State of the Infrastructure'

Potential Asset Management Class

May 15, 2017

Joe Labuz, Shannon Wolkerstorfer, Tom Eggum, Brad Henry



Appendix B: Asset Management Peer Exchange Participant List

	Speakers					
First Name	Last Name	Job Title	Organization			
Nick	Anderson	Consulting Engineer	Bogart-Person and Associates			
Mike	Becker	Engineering Technician	Morrison County Soil and Water District			
Tim	Colling	Director, Michigan LTAP	Michigan Tech University			
Brad	Henry	Engineer	MN2050			
Allison	Kampbell	GIS Specialist	Carver County			
John	Kostreba	Engineering Technician Supervisor	Morrison County Public Works Dept.			
Ryan	Miles	Street Operations Program Manager	City of Vancouver			
Inya	Nienanya	Research Specialist	Center for Transportation Research and Education, lowa State University			
Kris	Riesenberg	Team Leader	Federal highway Administration			
Steve	Stroschein	Senior Engineer	Crow Wing County Highway Department			
Brad	Wentz	Program Director	NDSU - Upper Great Plains Transportation Institute			
Rick	West	Public Works Director/County Engineer	Otter Tail County			
	Participants					
Barry	Becker	Senior Engineering Technician	Rice County			
Aaron	Chisholm	Senior GIS Analyst	Scott County			
Perry	Clark	Asset Manager	Carver County Public Works			
Loren	Fellbaum	County Engineer	Todd County Public Works			
Alan	Forsberg	retired Blue Earth County Engineer	retired			
Ronald	Gregg	County Engineer	Fillmore County, MN			
Chad	Hausmann	Assistant County Engineer	Wright County			
Matt	Hemmila	Deputy Public Works Director	St. Louis County Public Works			
Jon	Herdegen	Team Leader	MSA Professional Services, Inc.			
Sulmaan	Khan	Program Support Engineer	MnDOT			
Jim	Kollar	Asst. County Engineer	Rice County			
Steve	Kubista	County Engineer	Chippewa County			
Renae	Kuehl	Senior Associate	SRF Consulting Group			
Brian	Langseth	Sr. Administrative Manager	Hennepin County Public Works			
Todd	Larson	County Engineer	Stevens County			
Mark	Loidolt	Assistant Engineer	Benton County			
Layne	Otteson	City Engineer	City of Big Lake			
David	Roedel	Assistant Public Works Director	Sherburne County			
Paul	Sandy	Assistant City Engineer	City of Brainerd			
Dave	Solsrud	Asset Management Project Manager	MnDOT			
Joe	Triplett	Director of Public Works	Chisago County Public Works			

Staff				
First Name	Last Name	Job Title	Organization	
Mindy	Carlson	LTAP Program Manager	U of M, Center for Transportation Studies	
Jim	Grothaus	Program Director	U of M, Center for Transportation Studies	
Colleen	Schoenecker	Program Coordinator	U of M, Center for Transportation Studies	
Nancy	Stone	Program Support	MnDOT State Aid	
Joel	Ulring	Pavement Engineer	MnDOT State Aid	

Appendix C: Evaluation Summary

MINNESOTA LOCAL ASSET MANAGEMENT PEER EXCHANGE EVALUATION

MAY 16-17, 2017 HOLIDAY INN & SUITES, ST. CLOUD 18 EVALUATIONS

Please take a few minutes to complete the following evaluation. Your comments, opinions and suggestions are very important to us!

Please read each item and circle the number of the response that best describes your opinion.

 $(5= above \ average \rightarrow \rightarrow 1= below \ average)$

EVALUATION SUMMARY

1.	The location and facility for the MN Local Asset Management	4.6
	Peer Exchange was accommodating and welcoming.	
2.	Sufficient information about the event was provided	4.5
	beforehand.	
3.	The registration process was clear and organized.	4.6
4.	The content of the speakers was helpful and informative.	4.6
5.	There was sufficient time for questions and discussion.	4.9
6.	I received skills and knowledge that I can apply to my job.	4.7

Please circle the number that represents the topics that benefited you the most, with 3 being the most beneficial.				
Rating	Asset Management Topics			
2.7	Learning how other groups have done Asset Management Peer Exchanges			
2.3	Transportation Plans (Comment: "This can be future session")			
2.6	Integrated Asset Management			
2.4	Culvert Inventories			
1.9	City Asset Inventories (Comment: "Focus mainly county")			
2.7	Pavement Management			
2.4	Roadsoft Roadway Asset Management			
2.3	Pavement/Asset Management Associations			

Would you be interested in attending a future Asset Management training event? 14 = yes; 1= no;

What Asset Management topics would you like to see discussed/learn more about?

- RDA Ramps, Sidewalks
- Total system management, as utilities get replaced when pavement does...may bring sections to the top of the bucket with subsurface considerations
- Thoughts and user experiences about EAM's (Enterprise Asset Management Software)
- Coordination of A.M. between all levels of government
- Breakout of pros and cons of different asset management tools
- Inventory GIS
- Open to what others are doing
- Seek out some unique assets beyond pavement, signs, culverts, COTS solutions

- Actual applications, processes and success and failures; strategies
- Asset management of bridges, deck maintenance, etc.
- Statewide pavement management, consolidation of pavement van data, allow us to compare/evaluate systems across other counties

What other technical training topics would you like to see State Aid provide?

- This session was fantastic!!
- Pavement design, hydraulics
- Minimum data collection fields, frequency recommendations & influential diagrams/graphics for presentation to public & elected officials
- How to use various tools
- Certify survey/data collection personnel for consistency
- Talk about data standards and how they might be developed
- Funding